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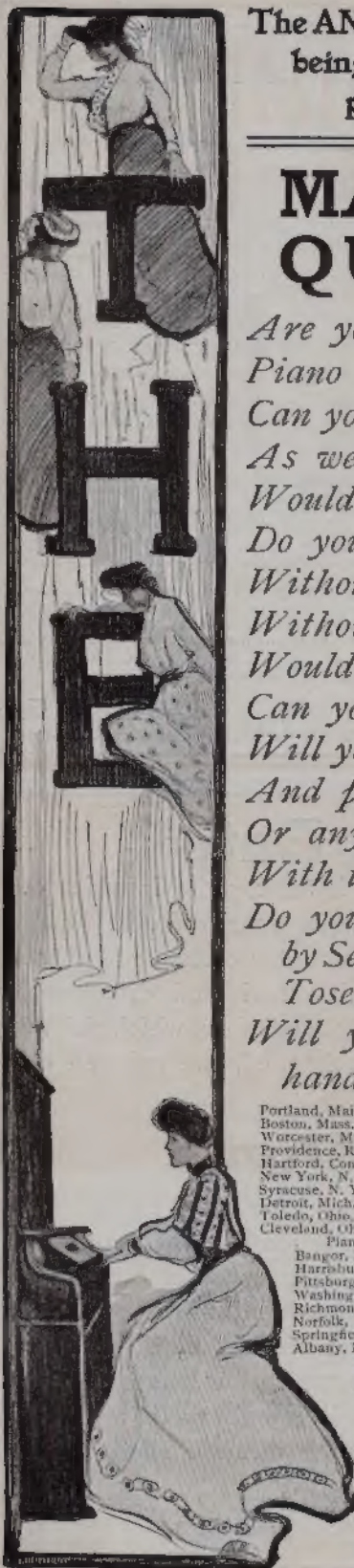
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Piano music?
Can you play the piano?
As well as the best pianists?
Would you like to?
Do you know you can?
Without knowing one note of music?
Without study?
Would you like proof?
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Will you call on one of our agents?
And play your favorite music?
Or any music?
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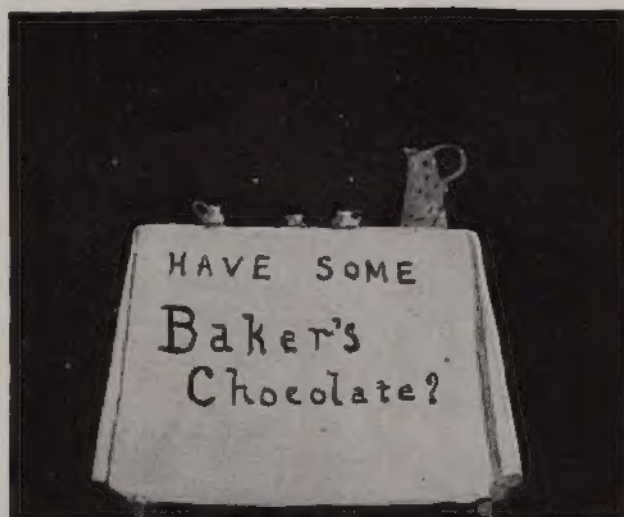


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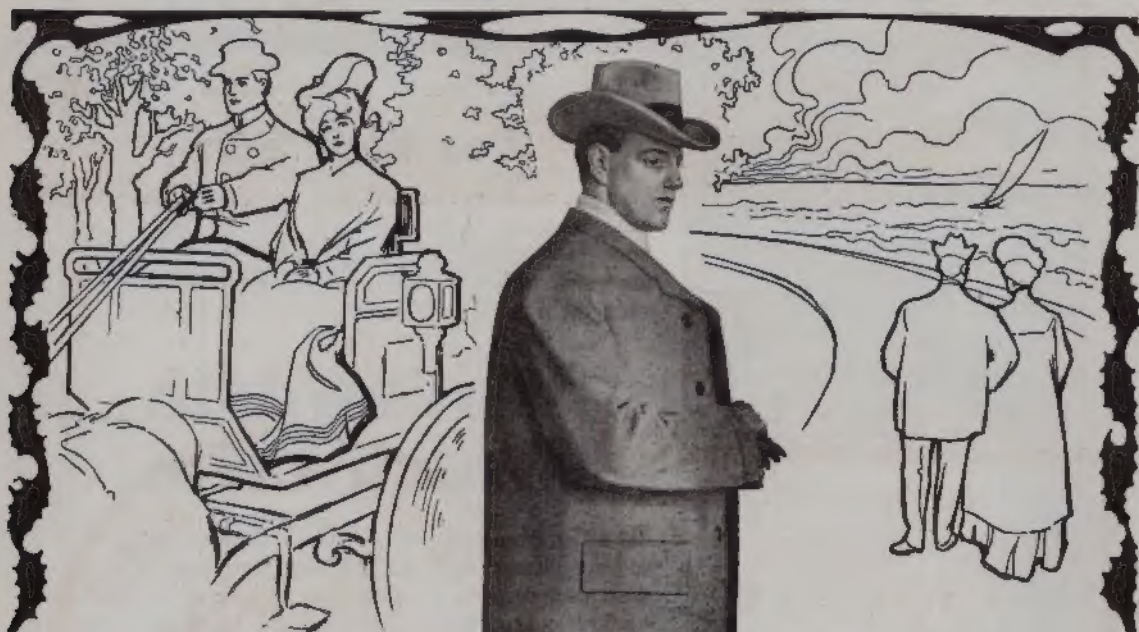
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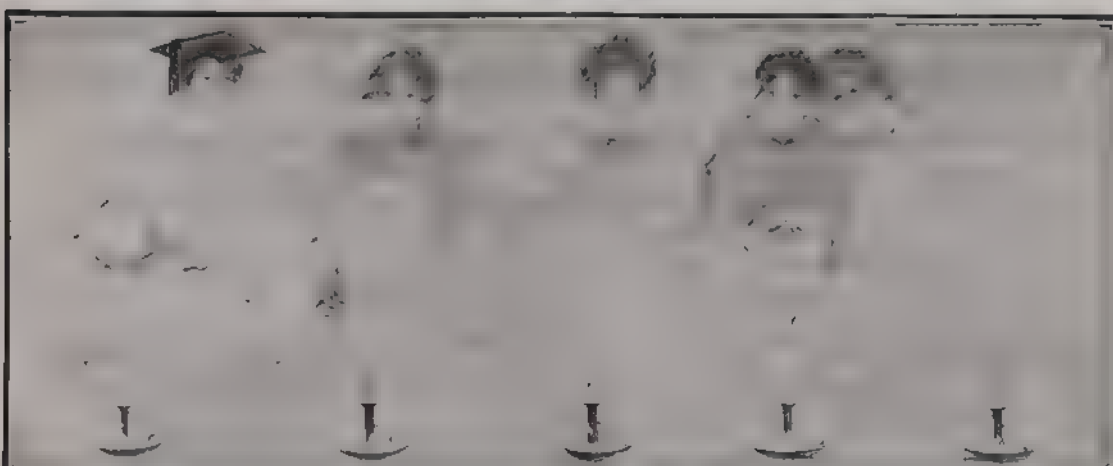
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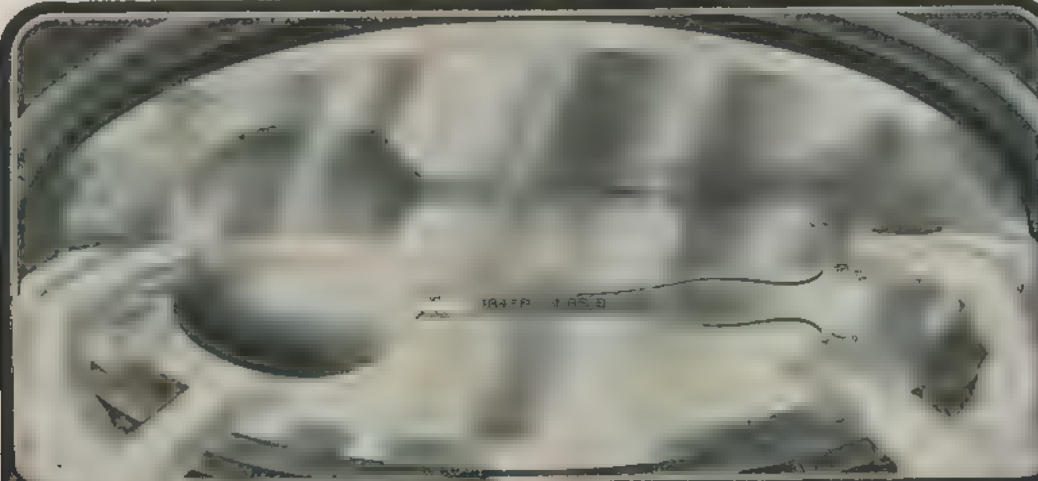


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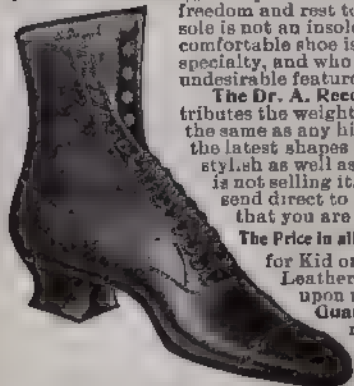
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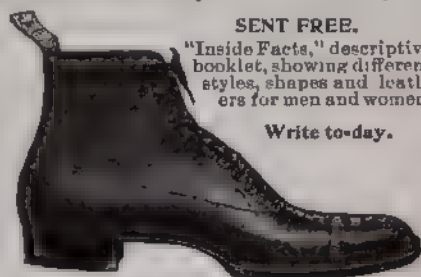
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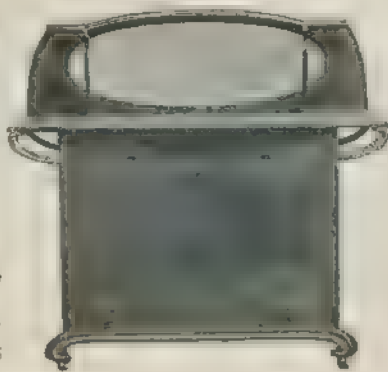
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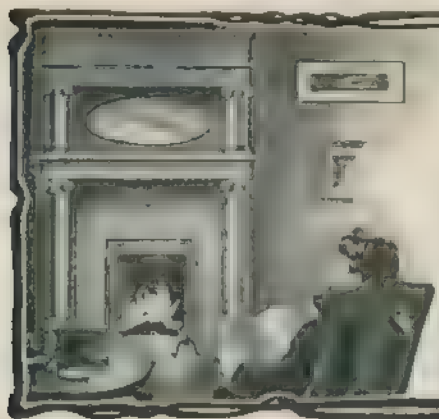
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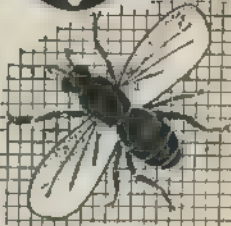
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Hardy flowers have all artistic advantages and all practical ones as well. Their first cost being their only cost, and their greatly increasing in size and beauty year after year, makes an investment in them yield an annual dividend of loveliness not to be computed in any ordinary way.

We have seen a garden where early spring is ushered in with myriads of snow-drops, crocuses, and violets peeping through the grass, with yellow daffodils and scarlet tulips, with rarest blue of scillas, and with odors of hyacinths; and later with lilies of the valley, and lilac, and hawthorns, and numerous flowering shrubs. June—the month of flowers—finds our garden fairly aglow with floral beauty, roses everywhere, in groups, on fences, sprawling on the grass with their wreaths of loveliness, clambering over bushes, and here and there covering even the tops of the trees

with showers of pink or white bloom. Not only roses, but monarch poppies, columbines, early-flowering clematises and irises in a multitude, and Easter lilies in all their purity, and the grand rhododendrons, second only to roses, and with them, later, the glorious auratum lilies showing stately above their rich greens.

With this grand June overture to summer our garden follows quickly with a succession of lovely and changing scenes—of day lilies, hardy pinks, exquisite Japan irises, and a procession of stately lilies, commencing with June, ending only with frost: of phloxes, hollyhocks—single and double—and clematises with their wreaths and garlands of purples, pinks, and whites: of foxgloves, larkspurs, and evening primroses: and our garden, daily, until frost, will have new attractions.

Arranged with some judgment at first, this garden might be left to take care of itself: time would but add to its attractions, and the happy owner might go away for years and find it beautiful on his return.

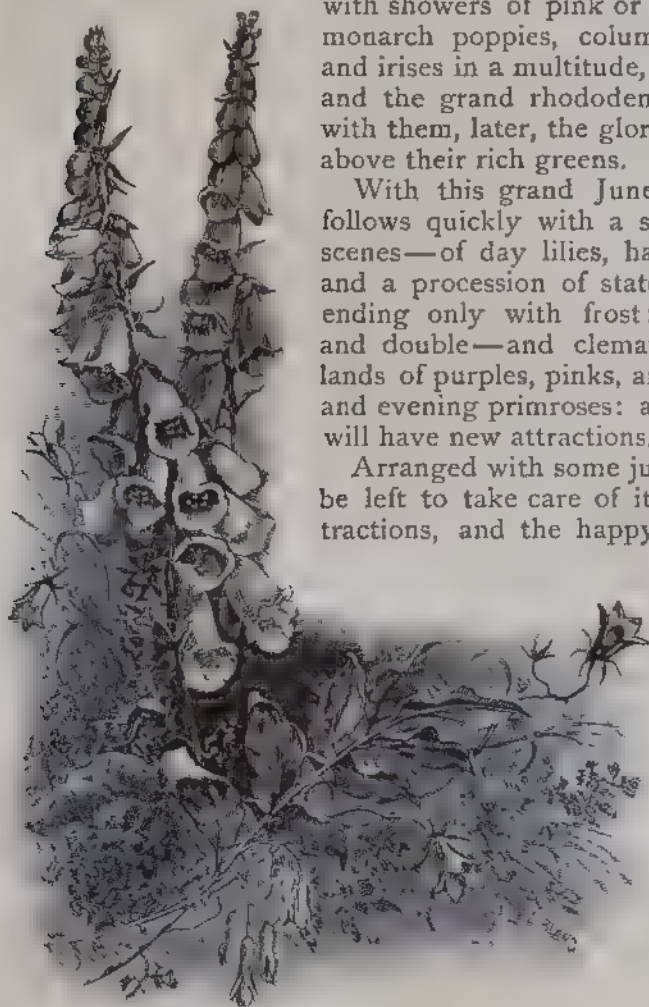
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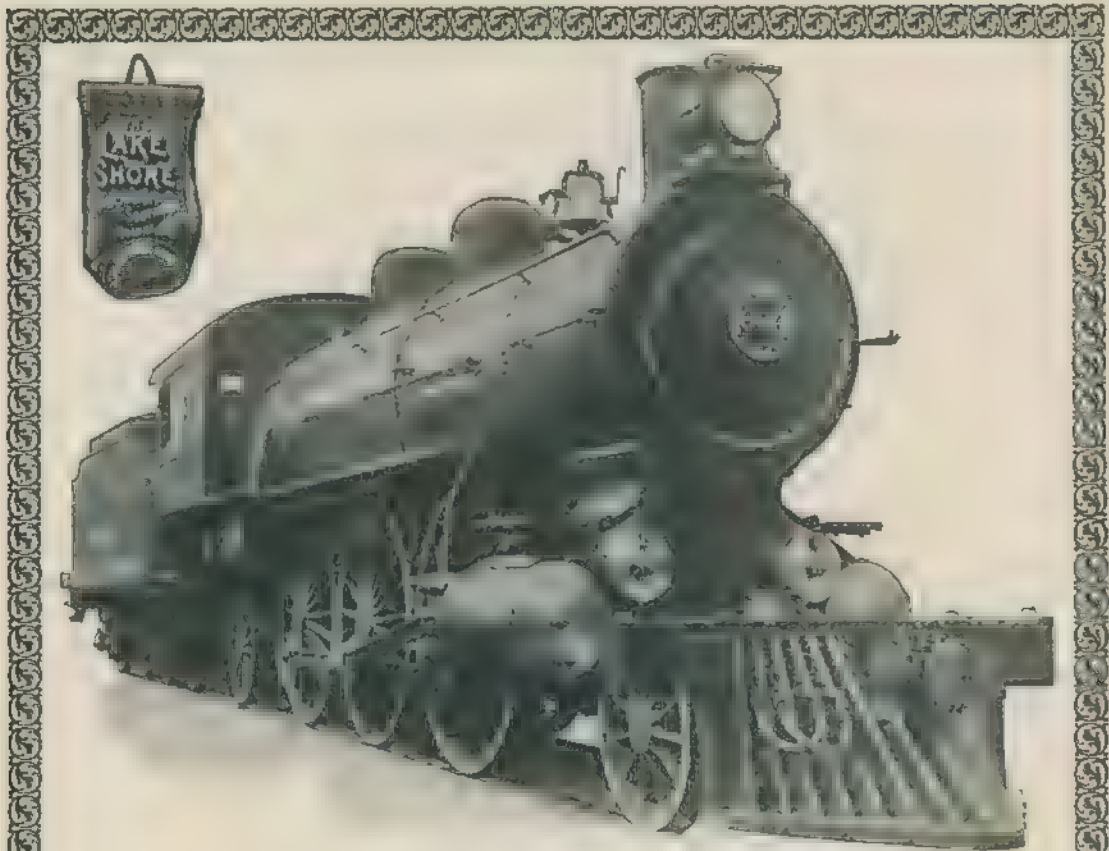
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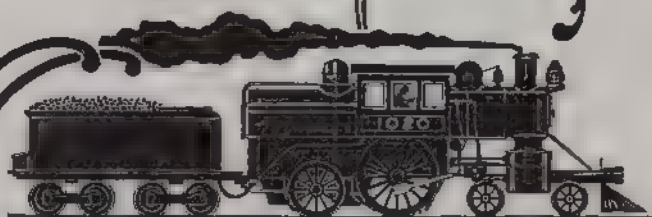
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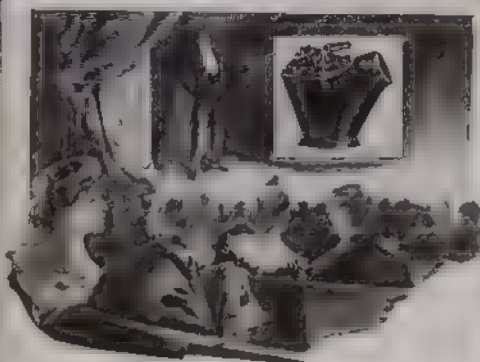
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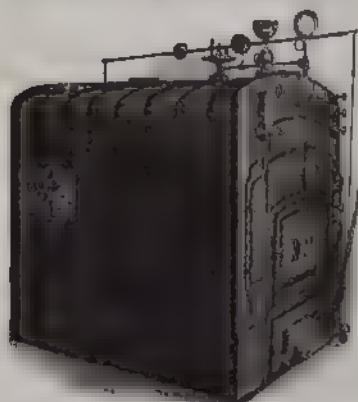
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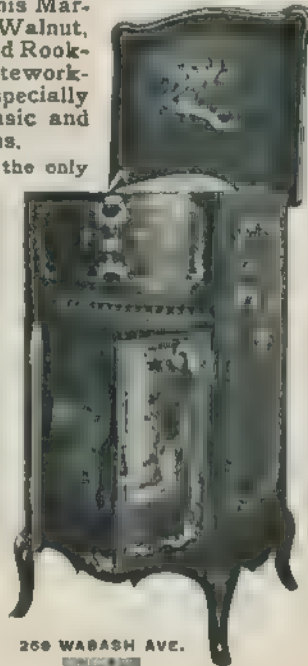
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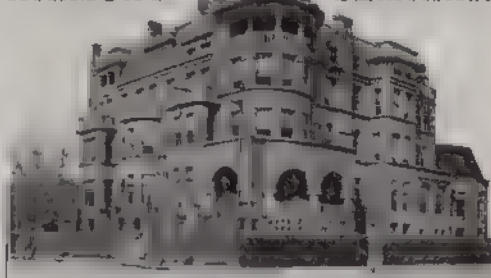
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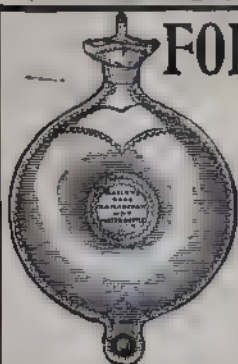
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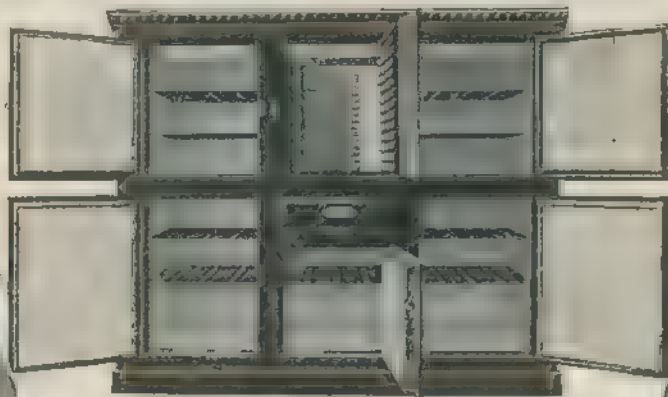
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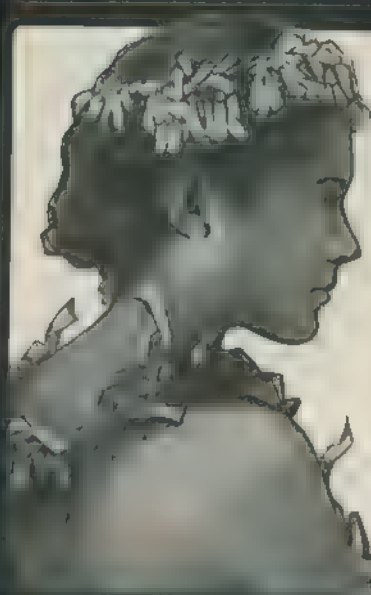
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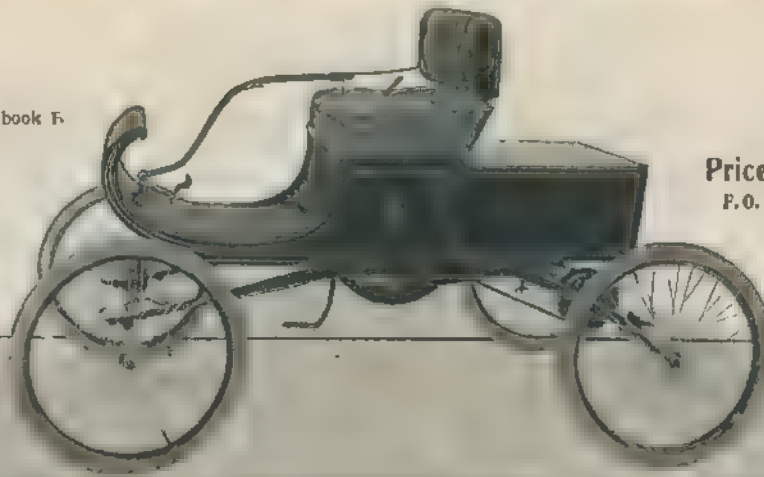
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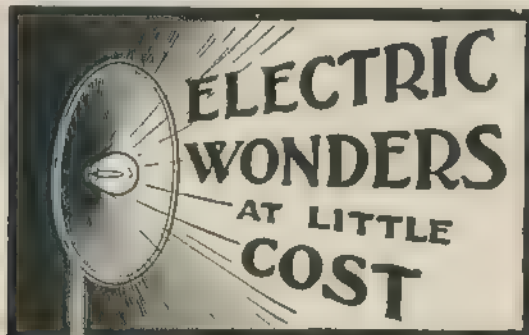
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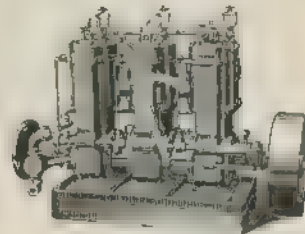
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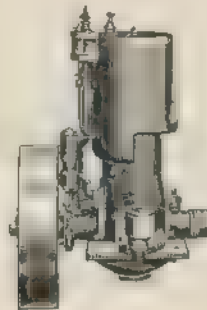
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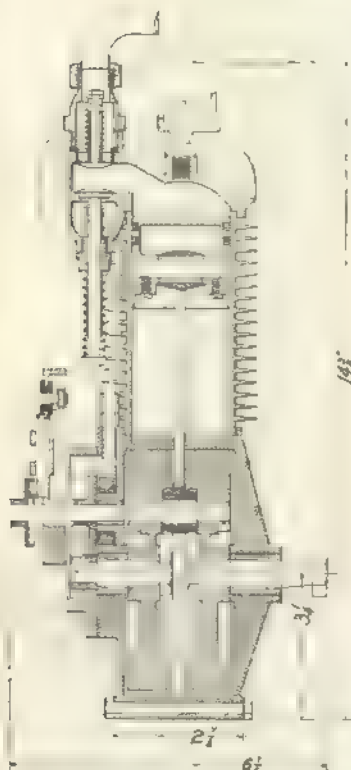
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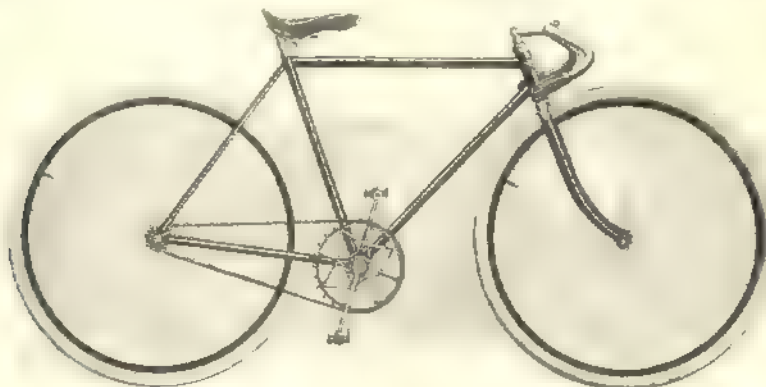
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IVER JOHNSON'S ARMS & CYCLE WORKS ANNOUNCE NEW MODELS AND NEW FEATURES.

The 1902 line of the Iver Johnson's Arms & Cycle Works, Fitchburg, Mass., comprises nine models, four of which are illustrated herewith. They enumerate their latest styles as follows:



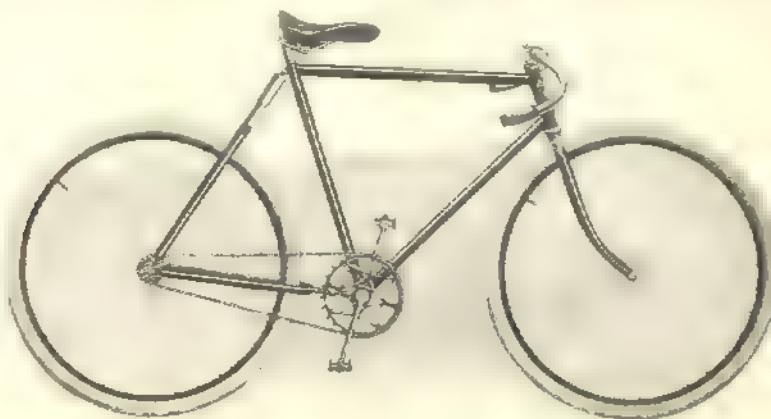
Model 74, light roadster, price \$35.00, made in 20, 22 and 24 inch frames. Model 75, women's roadster, price \$36.00; made in 20, 22 and 24 inch frames. Model 76, special light roadster (8 inch cranks), price \$45; made in 21 and 23 inch frames. Model 77, men's cushion frame roadster, price \$50.00; made in 22 and 24 inch frames. Model 78, women's cushion frame roadster, price \$50.00; made in 22 and 24 inch frames. Model 79 and 79A, Iver Johnsons Racer and Road Racer, respectively, price \$45.00; made of one inch tubing, and in 20 and 22 inch frames; weight about 20 pounds. Model 80 and 80A, Iver Johnson Truss Frame Racer and Road Racer, respectively, price \$50.00; made of one inch tubing, and in 20 and 22 inch frames; weight about 20 pounds.

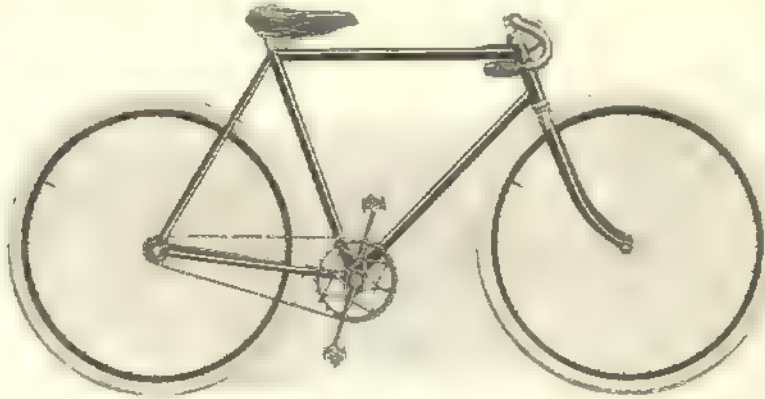
It will be observed from the above that the Iver Johnson concern is not prone to accept the too-often advanced argument that the bicycle has seen its best day. They seem to have confidence in the bicycle business, and its future. They believe there never was a better opportunity for putting

forth their best efforts in cycle building than at the present time. Furthermore, they have not been satisfied to move along the path of least resistance, as, among their new models will be found the one inch tube racer, built in the most up-to-date fashion, with even with light road equipments, scales close to 20 pounds.

These are the days when one leading feature might be considered sufficient, but not so with the Iver Johnson Co., for included in their line is the latest and newest thing in cycle construction, the truss frame. This departure from old lines, in addition to their attractive one inch tube racer, is indicative of the progressiveness of this concern.

Their truss frame is made in the racer and road racer types, and will be known as their Model 80. The end aimed at is lightness and strength. It is a bicycle adaptable to either road or track use. There may be a feeling in some quarters that, owing to the smaller brazing surface of the one inch tubes, compared with the $1\frac{1}{4}$ size, that a bicycle made of the former does not possess the requisite staunchness and rigidity, particularly if made with flush joints. This new truss frame construction of the Iver Johnson will immediately dispel any such fear, should it exist. This construction requires no explanation to show why it is strong. The fact is apparent at a glance. It is not as heavier than the regular racer, for, by





the use of the $\frac{3}{4}$ inch cross bar, which forms the "truss," they are enabled to use enough lighter materials in other parts to offset the weight of this cross tube, owing to the greater rigidity that the "truss" construction gives to the frame.

We are informed that the Iver Johnson concern has been allowed strong patents on this construction and design.

It must be refreshing to the trade to see so practical an improvement introduced at this time. It is indicative of a continued interest in the bicycle and its future. It should also serve the purpose of a trade tonic.

THE COLUMBIA AUTOMATIC GAS LAMP FOR BICYCLES AND AUTOMOBILES.

"Don't monkey with a water valve," say the Hine-Watt Manufacturing Co., 14 North Canal street, Chicago, Ill., in the circular advertising the Columbia Automatic Gas Lamp. In this lamp the flame is regulated by a gas valve and the water feed takes care of itself. It is for use on bicycles, automobiles and carriages. The water feed is entirely automatic and the valve cleans itself. By the use of a perfect water distributor, no carbide is wasted and the charge can be used repeatedly until exhausted. The carbide can is telescopic and dust proof. It is easily charged and cleaned and can be carried in the pocket without detriment to the charge, being, in fact, a rechargeable cartridge.

A straightway removable burner is used which is non-carbonizing. A splash diaphragm in water can prevent waste when lamp is used on rough roads. The bracket is very serviceable and meets various requirements. A special dashboard bracket is furnished when desired.

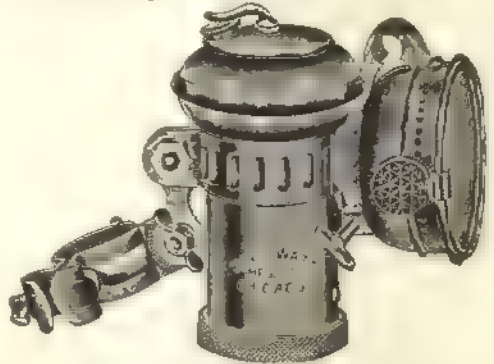
The reflector is the result of careful experiments. It is 3 inches in diameter, removable, and made of aluminum; gives a distribution of light according to the needs of the road.

Every lamp is carefully tested and made of the best materials, steel, brass and aluminum, heavily nickel plated and well finished. It is $5\frac{1}{4}$ inches high and weighs 15

ounces. Will burn from four to ten hours, according to size of flame.

Perhaps the feature that will commend it most is that it will light at once; there is no waiting for gas to generate.

This lamp is listed at \$3.00.



The Columbia Automatic Gas Lamp

The Hine-Watt Manufacturing Co. have issued a very handsome calendar for 1902 containing an advertisement of the Columbia Automatic Gas Lamp. As a suggestion of its brilliancy there is a picture of an old lighthouse keeper using a "Columbia Automatic Gas Lamp" to light the pathway of ships that are seen in the distance. As an indication of the great progress made in lighting facilities there is a picture called "The First Light," showing a number of men and women of primitive times huddled around a blazing pine knot.

G. W. Bennett, formerly manager of the G. & J. branch at Brooklyn, N. Y., and lately Eastern sales manager of the International Motor Car Co., has accepted a position with Thos. B. Jeffrey & Co., Kenosha, Wis.

The Aurora Automatic Machine Co., Aurora, Ill., recently commenced the manufacture of motor- and parts and have already more orders than they can conveniently fill this season. They intend increasing their facilities, however, and next season will inaugurate an aggressive campaign for business.

RUN YOUR OWN POWER AND ELECTRIC PLANT.

A new field for revenue has been opened up to the local repairman in charging electric automobiles, a field which requires special equipment and which he must have at once to keep in touch with this trade.

The larger storage stations and livery-houses in the large cities put in connections and supply this trade from the current rented or supplied by the municipal electric lighting plants. The Jewell kerosene engine, manufactured by the Jewell Storage Battery Co., Pittsfield, Mass., has been designed to cover the needs of the trade, not only in this line, but for smaller places wherever power of any kind is needed.

The Jewell kerosene engine and rig is small. More economical than any other and regulates fine enough to use on electric work and is usually sold in combination with a small dynamo which the firm also manufactures, so that it can be used as a charging plant when required. The growing demand for such service necessitates supplying it for the revenue to be secured and to prevent old customers straying elsewhere.

The shop and store can be lighted, and light even rented to neighbors to provide additional revenue. So economical and complete is the outfit and so in line with the development of the needs of the business that the up-to-date repairman or dealer must equip his shop with this or a similar outfit to secure the best returns from his 1902 labors.

The 3 H. P. Jewell crude oil or kerosene sparking engine which has been running at the factory for about two weeks has run

as high as 1500 R. P. M. The body of the engine is about the size of a silver water pitcher, the weight, including fly wheels, is under 200 pounds. The combustion is easily disposed of; it is noiseless and has been delivering 40 sixteen-candle power incandescent lights. This is an overload, as it is built to deliver only 25 lights. It handles 40 incandescent lights and then three 1000 C. P. arc lights alternately. It uses crude oil or kerosene cold from the tank. The engine pumps its own oil, and, in fact, runs automatically. It does not have to be started by hand. It is started by an electric switch which is located in the office. There is no odor whatever.

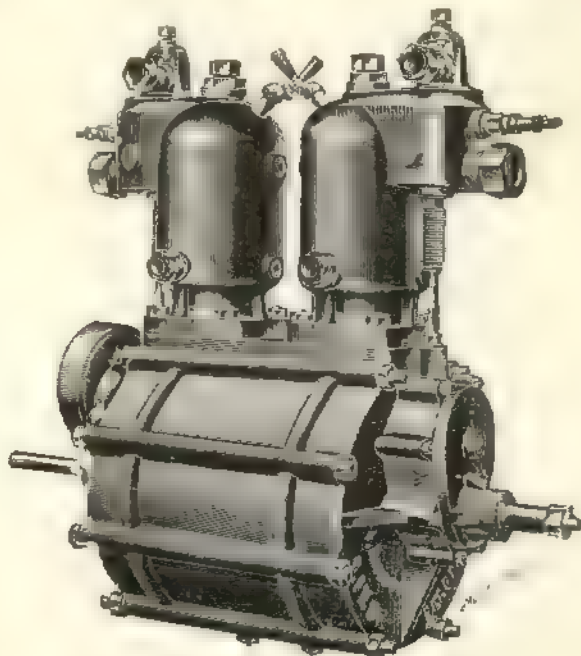
For lighting purposes it produces the power through a set of Jewell electro-chemically formed plate batteries, although it is delivering lights direct from the dynamo at present, which are as steady as any light in the world, and the cost of this complete plant is comparatively small.

The engine is built in 3, 10 or 25 H. P. sizes. It is of the two-cycle type, without gear or valve, noiseless, high speed and efficient and uses about one gallon of kerosene per 10 H. P. hours. It is fitted with the Jewell advance jump spark ignition.

KELECOM GASOLINE MOTORS

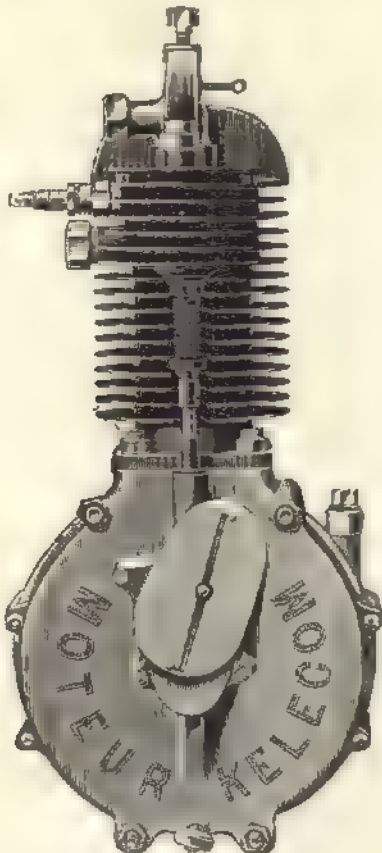
The Kelecom Motors have earned a special reputation in Europe and are now being offered to the American trade by A. H. Funke, 101 Duane street, New York city.

The Kelecom double cylinder water-cooled motor for large arrangements and delivery wagons is made in two sizes, developing 9 and



Kelecom Double Cylinder Water-Cooled Motor

11 H. P. respectively. The former weighs 200 to 210 pounds and lists at \$600. The latter weighs 240 to 250 pounds and lists at \$750. Spark plug and muffler are included.



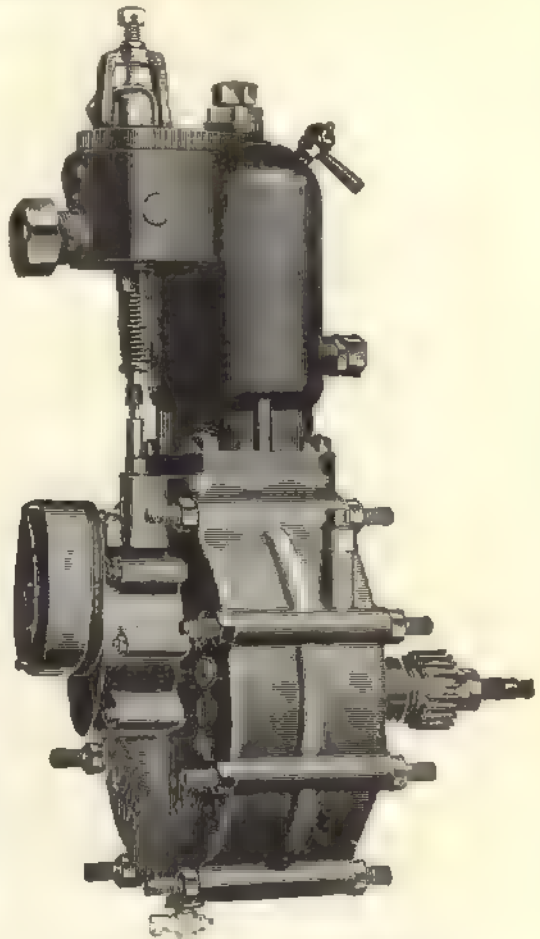
Keecom Single Cylinder Air-Cooled Motor.

The Keecom single cylinder water-cooled motor is made in two sizes. It is for automobile use. The 5 H. P. size weighs from 100 to 110 pounds and lists at \$300. The 7 H. P. size weighs from 130 to 140 pounds and lists at \$400. Prices include spark plug and muffler.

The Keecom single cylinder air-cooled motor is for motor cycles and weighs from 75 to 80 pounds. It develops $2\frac{1}{2}$ H. P. Price, including sparking plug and muffler, \$180.

Liberal discounts are offered to agents.

The Federal Multi Expansion Motor Co., Stapleton, S. E. N. Y., expect to have their automobile motors on the market in a short time. They will be both 5 and 7 H. P., the smaller to run at 3500 r. p. m. and the larger at 3000 r. p. m. The former will weigh about 200 pounds including boiler, and the latter about 240 pounds.



Keecom Single Cylinder Water-Cooled Motor
THE E. T. HARRIS GOODS WORTHY
OF ALL PRAISE.

E. T. Harris, 531 West Fifteenth street, Chicago, Ill., recognizing the changes that are taking place so rapidly in the bicycle business, has begun the perfecting of a line of supplies that will save much time and many inquiries.

Hub cones are always troublesome in replacement, but with Mr. Harris' adjustable cones any hub-cone made can be quickly repaired and adjusted.

All Mr. Harris' threads and sizes are standard, therefore in using his axles and nuts one is assured of perfect results.

The Harris hubs have now been so long before the public and in constant use have demonstrated their qualities of light running and long wearing that they are everywhere admitted to be standard.

The little catalogue sent out by Mr. Harris describes a compact and much-needed line, and no one can make error in depending fully upon him.

We are informed that within a short time there will be added a full line of head connections to his stock.



"Racycle" Ladies' Roadster, Model

"RACYCLES" FOR 1902

"As different from other bicycles as white is from black," is the claim made for the "Racycle" by its makers, Miami Cycle and Manufacturing Co., Middletown, Ohio. The "Racycle" may be considered high priced, but you get all you pay for, so that it is cheap in the long run.

The strongest point in "Racycle" construction is the position of the sprocket and the

pains have been exercised as in former models, and the manufacturers present as attractive a line for this year as one could wish for. A prominent feature is the magazine oiler and hubs, hanger and pedals, which keeps them thoroughly lubricated for a year.

We illustrate two new road wheels for ladies and gentlemen, which embody the self-oiling features through



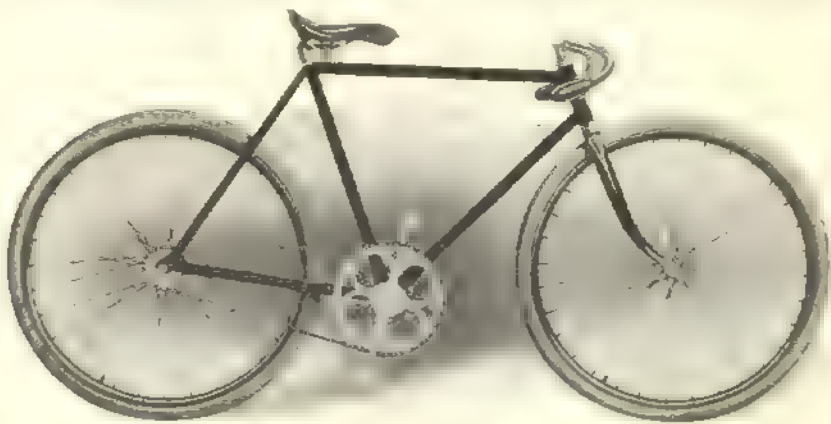
"Racycle" Hubs and Pedal.

arrangement of the crank hanger. The sprocket turns between the bearings, thereby cutting off all side leverage from the crank and side pull of the chain. As the sprocket revolves the chain has a direct pull upon the shaft.

Great care is exercised in the selection of materials and in the design of construction of every part of the "Racycle," and the result is a bicycle as near to perfection, perhaps, as it is possible to get.

In the 1902 "Racycle" the same care and

out The former catalogued as Model 73 lists at \$45. The specifications are: Black enamel, fork crown and tips nickel-plated V-shape, frame 20 or 22 inches, body one inch, 20 gauge tubing, 43 inch wheel base, tread 4½ inches, magazine self-oiling, "Racycle" crank hanger with 2½-inch drop, 24-tooth front sprocket, 8, 9 or 10-tooth rear sprocket; Tucker maple rim, antique oak finish, handsomely striped. Thor self-oiling hubs, "Racycle" single tube smooth tread or corrugated tires, Kelly adjustable handle-



"Racycle" Roadster, Model 72

bar, Sager Lanes' Coaster saddle, rubber pedals, self-oiling; Diamond 18 inch nickel steel chain, forward L seatpost with internal expander, woven wire chain guard, enamel



Fork and Head of the "Racycle." to match frame, dress guard finished to match rims, net lacing.

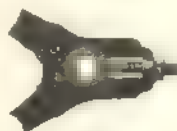
The gentleman's roadster, Model 72, lists at \$50. The specifications are, in the main, similar to Model 71; differing only in the



"Racycle" Crank Bracket Showing Reinforced joints

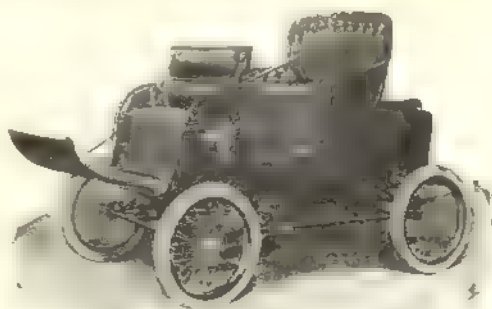
parts that distinguish a gentleman's from a lady's wheel.

The 1902 "Racycle" has been aptly styled the "Lazyman's Wheel," because it requires no attention after adjustment.



Rear Wheel Adjustment of the "Racycle."

Every one interested in bicycles ought to have a copy of the "Racycle" catalogue for 1902. In it the construction of "Racycles" is minutely described in a very lucid manner.



MODEL B

Westfield Automobile

I AM PREPARED to furnish all of the component parts of which the above wagon is made. Also MODEL A, lighter pattern for two passengers. Any of the following parts ready for delivery January 1st.

MECHANICAL TIRES.

In four sizes, 28x2, 28x2-1/2, 30x3, 34x4

COMPLETE SETS OF WHEELS

With Bearings.

RUNNING BEARS COMPLETE.

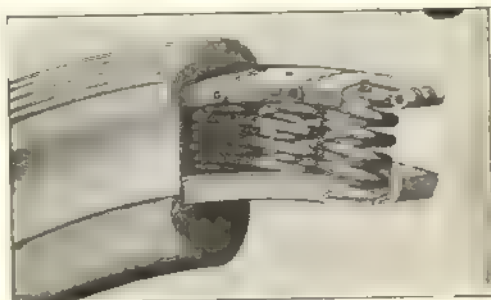
Two Sizes

BODIES, FIVE MODELS

Entire wagon ready for power, including brake and steering, furnished in best baking enamel on all metal parts. All wood parts best varnish finish. Upholstered in leather or cloth.

CHAS. J. MOORE

WESTFIELD, MASS.



Four sizes ready for delivery January 1st.

We want good representatives in every city in the United States.

MECHANICAL TIRE COMPANY

WESTFIELD, MASS.

1902 ORIENTS.

The Waltham Mfg. Co., Waltham, Mass., have made quite a number of changes in their 1902 models but the changes are principally matters of detail that do not materially effect the general appearance of the machines, which still retain all the prom-



Orient Chainless Bicycle—Model 71.

inent Orient features. The triple truss fork crown, Orient sprockets, two piece cranks, and many other features that have become identified with the Orient are not departed from.

The Orient Chainless, Model 71, is made with 22 and 24 inch frame; 28 inch front and



Orient Tandem—Model 72

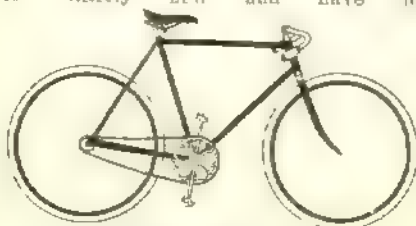
rear wheels; geared to 80; Garford Style I saddle, Goodrich 19 Tires, 1½ inches; 7 inch cranks, rat trap pedals, weight about 30 pounds. Price \$15.

The Orient Tandem Model 72 weighs about 45 pounds and is made in 22 inch frame with 28 inch wheels. It is geared



Waltham Ladies' Model 73

to 91, and equipped with Hartford tandem tires and Orient racing pedals. Garford style I saddle is also provided with this model. Cranks are 7 inches and their style D handlebar is used. Price is \$75. This model has not been materially changed. Models 73 and 74, called respectively the "Waltham Ladies" and the "Waltham," are entirely new and have just



Waltham Model 74

been added to the line to meet the demand for a low priced wheel. They have 22 inch frames, 28 inch wheels, Garford saddles and Waltham single tube, 1½ inch tires. The gentlemen's model has 84 gear.



Orient Ladies' Light Roadster—Model 75.

7 inch cranks, rat trap pedals, adjustable 2-inch drop handlebar, and weighs about 21½ pounds. The ladies' model is geared to 77 and equipped with 6½ inch cranks, rubber pedals and adjustable raised handlebar. Weight is about 24 pounds. They both are at \$30. No options are allowed.

Models 75 and 76 are light roadsters, the



Orient Light Roadster—Model 76.

former for ladies and the latter for gentlemen. Both are made regularly with 22 inch frames, 28 inch wheels, Garford saddles and Goodrich 19 inch and a half tires. The ladies model is geared to 70 and has 6½ inch cranks, rubber pedals and their style C



Orient Leader—Model 77.

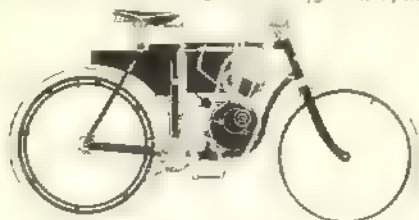
handlebar. It weighs about 24 pounds. The gentlemen's model weighs about 22 pounds and is geared with a style D handlebar, rat trap pedals and 7 inch cranks. It is geared to 84. It lists at \$50, and the ladies' at \$40. The Orient chainless, Model 71, aside from the driving mechanism is similar in general construction to these models.



Orient Roadster Model 78

Model 77 is the "Orient Leader," and lists at \$50. Frame is 21 inches, wheels 28 inches, Hartford style I saddle, Orient racing pedals and style D handlebar are provided. It weighs about 21½ pounds. 1½ inch Hartford tires are used. Cranks are 7 inches long. It is geared to 84.

The Orient Racer, Model 78, lists at \$50 also. It has 19 inch frame and weighs 20 pounds. Front wheel is 26 inch and rear wheel 28. Gear is 88, cranks 6½ inches, and



Orient Motor Bicycle

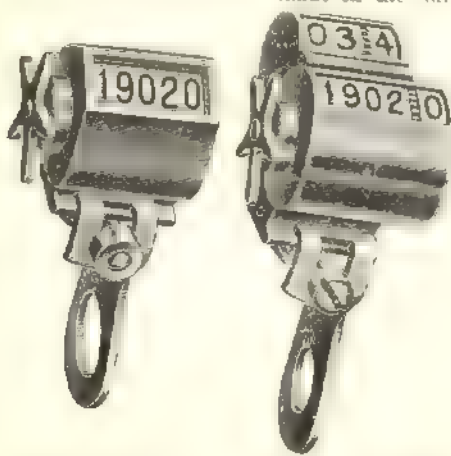
tires Hartford 80, 1½ inches. Style E handlebar and Orient racing pedals are used. Hartford style H saddle is provided.

The specifications given above are for the regular models finished in black enamel. Options are given on most of the machines mentioned, but where options are taken, delay in delivery must be expected. Prices quoted include tool bag, wrenches, oiler, etc. New Departure Coaster Brake will be added for \$5 extra except on Model 78, on which coaster brakes are not fitted, and Model 71, the price of which includes coaster brake.

The Orient Motor Cycle is now well known throughout the country. It lists at \$250.

1902 VEEDER CYCLOMETERS.

The Veeder Manufacturing Co., Hartford, Conn., have made no changes in the mechanism of their cyclometers for 1902, although some changes have been made in the out-



Veeder 1902 Cyclometer.

1902 Trip Cyclometer.

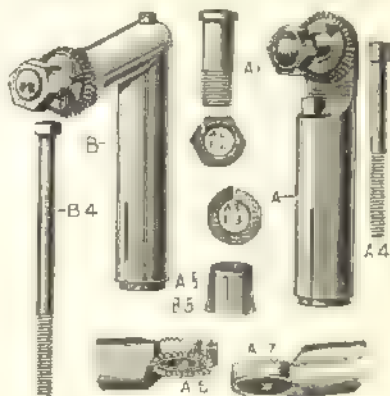
ward design. In the regular cyclometer and also in the trip cyclometer a much heavier gib and clip are used. Also in the single cyclometer the number panel is thrown up square, adding greatly to the ease with

which it can be read from a distance. The list prices remain at \$1.00 for single and \$2.00 for trip.

KELLY HANDLE-BAR PART PRICES FOR 1902.

The Kelly Handle-Bar Co., Cleveland, Ohio, has issued their 1902 price list of Kelly Adjustable Handle-bars and parts. The quotations are as follows:

	List
A-Regular Stem, plain	\$0.70
A-Regular Stem, expander	.80
A1-Regular Stem, bolt	.10
A2-Regular Stem, bolt nut	.05
A3-Regular Stem, bolt nut washer	.05
A4-Regular Stem, expander screw	.10
A5-Regular Stem, expander plug	.10
A6-Regular left side arm, double row of teeth	.65
A7-Regular right side arm, single row of teeth	.65



Kelly Handle-Bar Parts

B1-1 to 2½ in. Forward Extension Stem plain	.90
B1-1 to 2½ in. Forward Extension Stem expander	1.30
B2-Forward Extension Stem Nut	.05
B3-Forward Extension Stem Washer	.05
B4-Forward Extension Stem Expander screw	.10
B5-Forward Extension Expander Plug	.10
B6-(double row of teeth) Forward Extension, right side arm	.65
B7-(single row of teeth) Forward Extension, left side arm	.65
Extra Length Stems, up to 8 in., additional	.25

CATALOGUES AT THE CHICAGO SHOW.

"The Cycle and Automobile Trade Journal," at its space, No. 34 at the Chicago Show, March 1 to 8, has made provisions for the display and distribution of its advertisers' catalogues. The catalogues will be arranged upon a large table in such a way that visitors can readily select those which they want. A large number of copies of the "Chicago Show Number" of "The Cycle and Automobile Trade Journal" will also be distributed.

AMERICAN CUT GLASS.



Nos. 120 to 122, PUNCH BOWL.

LAKE SIDE PATTERN, DETACHED FOOT.

- | | |
|---|---------------|
| No. 120—Punch Bowls, Diameter 8½ inches, | Each, \$30 25 |
| No. 121—Punch Bowls, Diameter 9½ inches, | Each, 37 15 |
| No. 122—Punch Bowls, Diameter 10½ inches, | Each, 50 00 |



Nos. 100 to 103, DEEP BOWL.

ECLIPSE PATTERN.

- | | |
|---|---------------|
| No. 100—Deep Bowls, Diameter 7 inches, | Each, \$ 7 15 |
| No. 101—Deep Bowls, Diameter 8 inches, | Each, 9 00 |
| No. 103—Deep Bowls, Diameter 10 inches, | Each, 15 85 |



IDEAL WATER SET.

Ideal—Water Sets, Consists of 1 Squat Carafe, Heavy Blanks, Deep Cutting, and 6 Tumblers, Star Pattern, with 1 13-inch Reflector, ... Per Set. \$19 80



Nos. 41 to 43, VASE.

LOUISIANA PATTERN

- | | |
|----------------------------------|--------------|
| No. 41—Vases, Height, 8 inches, | Each, \$5 50 |
| No. 42—Vases, Height, 10 inches, | Each, 7 45 |
| No. 43—Vases, Height, 12 inches, | Each, 9 10 |

AMERICAN CUT GLASS.



CARAFE.

No. 350—Carafes or Water Bottles, Berlin Pattern, squat, Capacity 1 quart.

Each, \$8 25



SYRUP PITCHER.

No. 0786—Syrup Pitchers, Lakewood Pattern, Quadruple Plate Top, Capacity $\frac{1}{2}$ pint.

Each, \$8 25



VINEGAR OR OIL CRUET.

No. 3—Vinegar or Oil Cruets, Yolande Pattern, Capacity $\frac{1}{4}$ pint.

Each, \$5 00

CREAMS AND SUGARS.



CREAM.

No. 29—Creams and Sugars,



SUGAR.

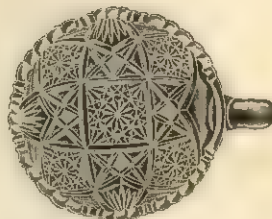
Per Pair, \$8 25



SAUCER OR NAPPY.

No. 740—Saucers or Nappies, Diameter 5 inches, Keystone Pattern, Each, \$3 40

No. 741—Saucers or Nappies, Diameter 6 inches, Keystone Pattern, Each, 3 80

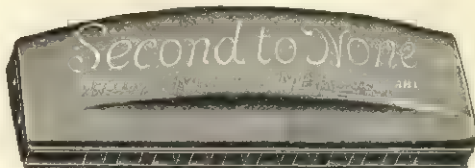


HANDLED NAPPY.

No. 234—Handled Nappies, Diameter 5 inches, Clinton Design, Each, \$3 85

No. 235—Handled Nappies, Diameter 6 inches, Clinton Design, Each, 4 00

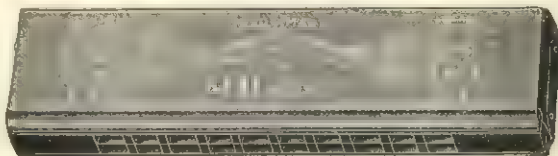
HARMONICAS.



No. 1900—M. Hohner's Second to None, 19 Single Holes, 20 Reeds, Brass Plates, Finely Nickel-Plated, Per Dozen, \$5 50



No. 61—M. Hohner's Up-To-Date Surprise, 10 Single Holes, 20 Reeds, Heavy Novel Brass Covers, Finely Nickel-Plated, Per Dozen, \$5 50



No. 70—M. Hohner's 10 Double Holes, 20 Reeds, Brass Plates, Nickel Covers, Concert Size, Per Dozen, \$6 00
No. 112—Polyhymnia, 16 Double Holes, Brass Plates, Nickel-Plated Covers, " 4 00



No. 1896—M. Hohner's Marine Band, 10 Single Holes, 20 Reeds, Brass Plates, Open Back, Finely Nickel-Plated, Per Dozen, \$5 50



No. 72—M. Hohner's Marine Band, Trio Concert, 14 Double Holes, 28 Reeds, Brass Plates, Open Back, Finely Nickel-Plated, Per Dozen, \$8 00

HARMONICAS.



No. 318 The Whopper, 10 Single Holes, Nickel-Plate Covers,

Per Dozen, \$0 70



No. 320—Old King Cole, 12 Single Holes, Nickel-Plate Covers, Brass Plates,

Per Dozen, \$1 30



No. 333—Uwanta Richter, 10 Single Holes, Nickel-Plate Covers, Brass Plates,

Per Dozen, \$1 60



No. 326—The Trefeil, 10 Single Holes, Nickel-Plate Covers, Steel Bronze Reeds,

Per Dozen, \$2 50



No. 33—Ludwig Genuine Richter, 10 Single Holes, Nickel-Plate Covers, Brass Plates,

Per Dozen, \$3 00



No. 34B—Genuine Hohner, 10 Single Holes, Nickel-Plate Covers, Brass Plates,

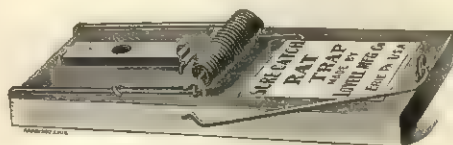
Per Dozen, \$4 00

RAT TRAPS.



STAR.

Star—Rat Traps, Oil Finished, ... Per Dozen, \$2 50
Packed One Dozen in a crate.



SURE CATCH (OR SURE DEATH).

Sure Catch (or Sure Death)—Rat Traps, Per Dozen, \$1 25
Packed One Dozen in a box.



"OUT O' SIGHT."

"Out o' Sight"—Rat Traps, . . . Per Dozen, \$2 50
Packed One-half Dozen in a box.

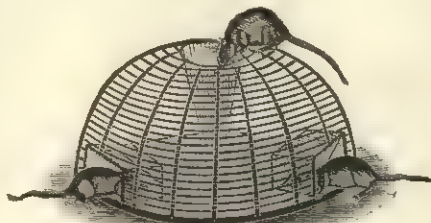


ST. LOUIS RAT TRAP.

MADE OF COPPERED WIRE.

No. 2—St. Louis Rat Traps, Size 16 x 9 x 7 inches, ... Per Dozen, \$ 5 50
No. 1—St. Louis Rat Traps, Size 19 x 10 x 8 inches, ... Per Dozen, 10 00
Packed One-half Dozen in a bundle.

RAT TRAPS.



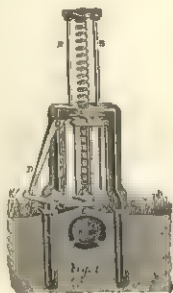
ROUND WIRE.

No. 5—Wood Bottom, Round Wire, Rat Traps,
Per Dozen, \$4 50

No. 6—Wire Bottom, Rat Traps, . . . Per Dozen, \$5 00

Packed One-half Dozen in a crate.

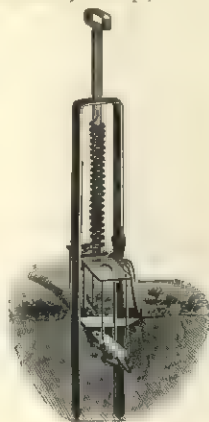
MOLE TRAPS.



OLMSTED'S.

Olmsted's—Mole Traps, Made of Steel and Iron,
Length 12 inches, . . . Per Dozen, \$30 00

Packed One-twelfth Dozen in a box.

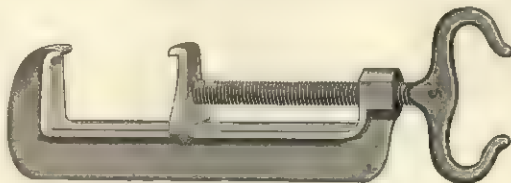


REDDICK'S.

Reddick's—Mole Traps, Steel Frame and Steel
Spring Wire, Tinned, Length 24 inches.
Per Dozen, \$15 00

Packed One-half Dozen in a crate, Weight 20 Pounds.

SETTING CLAMPS FOR STEEL TRAPS.

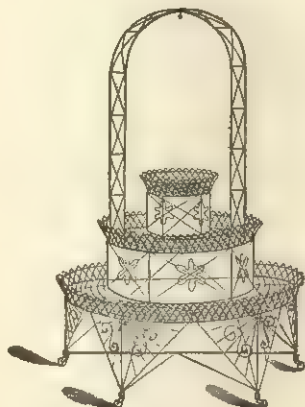


SETTING CLAMP

Newhouse - Setting Clamps for Steel Traps,	{ Nos.	4	5	6
	Weight Per Dozen, pounds,	2½	9½	18
	Per Dozen,	\$1.60	4.60	7.60

Every Trapper knows how difficult it is to set a large trap alone in the woods, especially in cold weather, when the fingers are stiff; and the difficulty is greatly increased when one has to work in a boat. One of these Clamps applied to each spring will, by a few turns of the thumb screws, bend the springs to their places, so that the traps may be adjusted without difficulty. No. 4 Clamps can be used on any trap smaller than No. 14. Nos. 3 and 6 are strong Clamps, carefully made, and especially adapted to setting the large bear traps. They dispense with the inconvenient and dangerous use of levers. With them one can easily set these powerful traps. These clamps are also useful about camp for other purposes.

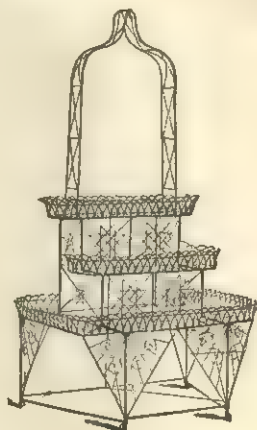
WIRE FLOWER STANDS.



Nos. 5 AND 6

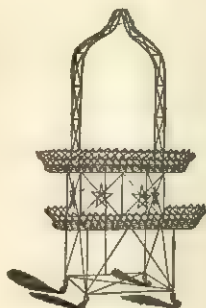
No. 5—Stand and Arch, Height 6 feet 6 inches,
Length 36 inches, Depth 24 inches, . . Each, \$ 9 00

No. 6—Stand and Arch, Height 7 feet, Length 42
inches, Depth 28 inches, ... Each, 10 00



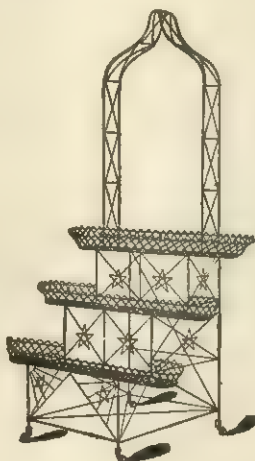
No. 26.

No. 26—Stand and Arch, Height 6 feet 7 inches,
Length 48 inches, Depth 30 inches, . . Each, \$12 00



No. 2.

No. 2—Stand and Arch,
Height 6 feet 4 inches, Length
36 inches, Depth 18 inches,
Each, \$7 50



No. 3.

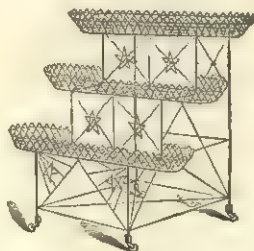
No. 3—Stand and Arch,
Height 6 feet 6 inches, Length
36 inches, Depth 26 inches,
Each, \$9 00



No. 20.

No. 20—Stand, without Arch,
Length 36 inches, Depth 18
inches, ... Each, \$8 50

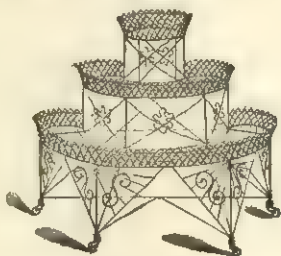
WIRE FLOWER STANDS.



No. 30.

No. 30 - Stand, Without Arch, Length 36 inches, Depth 26 inches,

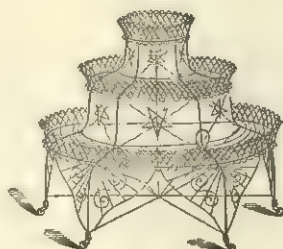
Each, \$8 50



Nos. 50 AND 60.

No. 50 - Stand, Without Arch, Length 36 inches,
Depth 24 inches, . . . Each, \$3 00

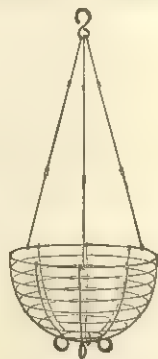
No. 60 - Stand, Without Arch, Length 42 inches,
Depth 28 inches, . . . Each, 9 00



No. 11.

No. 11 - Stand, Without Arch, Length 48 inches,
Depth 32 inches, . . . Each, \$11 00

HANGING BASKETS.



No. 10.

No. 10 - Moss Basket, Diameter 9 inches, Per Dozen, \$3 50

WIRE FLOWER STANDS.



No. 2 1/2.

No. 2 1/2 - Stand, { Diameter, inches, 12 16 24
Each, . . . \$3.00 4.00 6.00

HATCHETS.

WITTE HARDWARE CO. "A1."

MADE OF SOLID CAST STEEL, FULL POLISHED, SELECTED HICKORY HANDLES, AND ARE FULLY WARRANTED. THEY ARE PACKED IN STRONG WOOD BOXES.

These Hatchets have a Solid Box Eye above the handle, produced by a patented process, giving a much larger bearing surface for the handle, and holds it in the tool with greater firmness.



W. H. CO. "A1" SHINGLING

- No. 601—Size 1, Weight, 1 lb. 1 oz., Bit, $3\frac{1}{2}$ inches,
Per Dozen, \$10 50
No. 602—Size 2, Weight, 1 lb. 1 oz., Bit, 4 inches,
Per Dozen, 11 00
No. 603—Size 3, Weight, 1 lb. 13 oz., Bit, $4\frac{1}{2}$ inches,
Per Dozen, 11 50



W. H. CO. "A1" HALF.

- No. 611—Size 1, Weight, 15 oz., Bit, $3\frac{1}{2}$ inches,
Per Dozen, \$11 00
No. 612—Size 2, Weight, 1 lb. 5 oz., Bit, $3\frac{1}{2}$ inches,
Per Dozen, 11 50

Packed One-half Dozen in a wood box.



W. H. CO. "A1" CLAW.

- No. 621—Size 1, Weight, 1 lb. 3 oz., Bit, $3\frac{1}{2}$ inches,
Per Dozen, \$11 50
No. 622—Size 2, Weight, 1 lb. 9 oz., Bit, 4 inches,
Per Dozen, 12 00
No. 623—Size 3, Weight, 1 lb. 15 oz., Bit, $4\frac{1}{2}$ inches,
Per Dozen, 12 50



W. H. CO. "A1" LATHING.

- No. 631—Size 1, Weight, 15 oz., Bit, $3\frac{1}{2}$ inches,
Per Dozen, \$11 00
No. 632—Size 2, Weight, 1 lb., 5 oz., Bit, $3\frac{1}{2}$ inches,
Per Dozen, 11 50

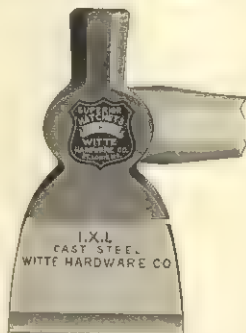
Packed One-half Dozen in a wood box.

HATCHETS.

WITTE HARDWARE CO.'S "IXL"

MADE OF SOLID CAST STEEL, GOLD BRONZED, POLISHED BITS, AND ARE FULLY WARRANTED.
THEY ARE PACKED IN STRONG WOOD BOXES.

These Hatchets have a Solid Box Eye above the Handle, produced by a Patented Process, giving a much larger bearing surface for the handle and holds it on the tool with greater firmness.



W. H. CO., "IXL" SHINGLING.

- No. 501**—Size 1, Weight, 1 lb. 1 oz., Bit, $3\frac{1}{2}$ inches,
Per Dozen, \$8 00
No. 502—Size 2, Weight, 1 lb. 7 oz., Bit, 4 inches,
Per Dozen, \$ 60
No. 503—Size 3, Weight, 1 lb. 13 oz., Bit, $4\frac{1}{2}$ inches,
Per Dozen, \$ 00



W. H. CO. "IXL" HALF.

- No. 511**—Size 1, Weight, 15 oz., Bit, $3\frac{1}{2}$ inches,
Per Dozen, \$8 50
No. 512—Size 2, Weight, 1 lb. 6 oz., Bit, $3\frac{1}{2}$ inches,
Per Dozen, \$ 00

Packed One-half Dozen in a wood box.



W. H. CO. "IXL" CLAW.

- No. 521**—Size 1, Weight, 1 lb. 3 oz., Bit, $3\frac{1}{2}$ inches,
Per Dozen, \$9 00
No. 522—Size 2, Weight, 1 lb. 9 oz., Bit, 4 inches,
Per Dozen, \$ 60
No. 523—Size 3, Weight, 1 lb. 15 oz., Bit, $4\frac{1}{2}$ inches,
Per Dozen, 10 00



W. H. CO. "IXL" LATHING

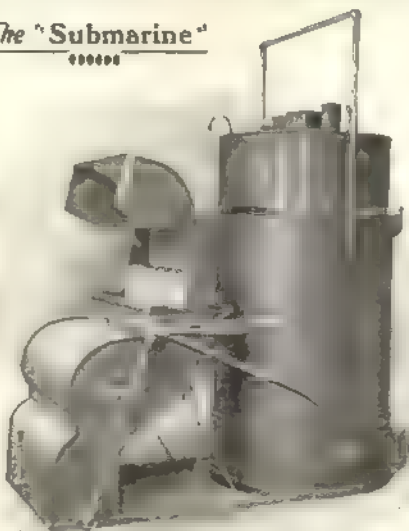
- No. 531**—Size 1, Weight, 14 oz., Bit, $2\frac{1}{4}$ inches,
Per Dozen, \$8 00
No. 532—Size 2, Weight, 1 lb. 1 oz., Bit, $2\frac{1}{2}$ inches,
Per Dozen, \$ 50

Packed One-half Dozen in a wood box.

Gold Medal Greater America Exposition, Omaha, 1899. Gold Medal International Exposition, Paris, 1900

GOLD MEDAL — Highest Award Pan-American Exposition
BUFFALO, 1901**STANDARD VISIBLE WRITER****Nº3 1902
MODEL
OLIVER****OUTRANKS ALL TYPEWRITERS**

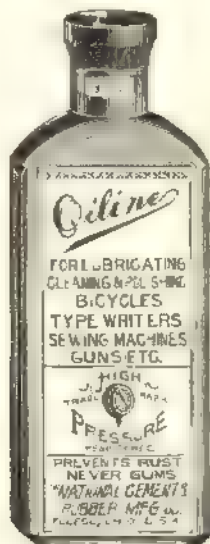
THE OLIVER TYPEWRITER COMPANY, 927 WALNUT STREET, PHILADELPHIA

The "Submarine"
******Agents Wanted in Every Town*A MONEY MAKER AND
A MONEY SAVER . . .**The Submerged
Carbide System***Simplest and Most Perfect
Machine on the Market for
Producing a PURE, COOL
ACETYLENE GAS*Machine Never Opened to Clean
or RechargeMechanism Simple and Always
Exposed to the ViewOnly One Cock to be Used Occas-
ionally Hence No ConfusionAn Economical and Easy Machine
to HandleSEND FOR ILLUSTRATED CATALOG
AND TREATISE ON ACETYLENE**The Sunlight Gas Machine Co.**

261 BROADWAY ■ ■ NEW YORK

NEW LUBRICANTS AND CLEANING OILS.

The National Cement and Rubber Mfg Co., Toledo, O., are now offering Jifoid, Chainine and Oiline, three very meritorious articles



Bottle of Oiline.

Oiline is for lubricating, cleaning and polishing bicycles, typewriters, sewing machines, woodwork, etc. It never gums. It prevents rust forming on nickel and steel. It is put up in 3-ounce bottles, each bottle in a paper carton, and packed 12 bottles to a box



Tube of Chainine. Showing Brush Top

Chainine is a high grade chain lubricant in paste form. It is put up in tubes with brush tops. The tubes measure $\frac{3}{4}$ x 3 inches, and one dozen tubes are packed in pasteboard display box. The brush tops allow direct and easy application of the lubricant to the chain and prevent shed hairs.

Jifoid is a very efficient quick repair cement. It quickly stops leaks in single tubes without the use of plugs. It will also cement patches or plugs and can be used as a rim cement. Jifoid is put up in 1-ounce tubes and packed one dozen tubes to a box.



Display Case of Chainine



Case of Jifoid

These articles are in the hands of nearly every jobber in the country

BARKER & CO.'S 1902 CATALOGUE.

A very complete catalogue of bicycle and automobile sundries, parts, fittings, tools, etc., has just been issued by C. B. Barker & Co., 83 Rensselaer street, New York City. This company are always ready to meet legitimate competition in prices, although they do not "price cutters," preferring to devote their energies to supplying standard goods at a fair price than to strive to keep down prices by skimping quality.

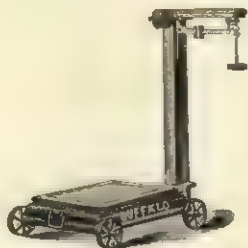
They are exclusive distributing agents for Crawford Bicycles in the territory included approximately, within a radius of 100 miles of New York City. They also represent the American Dunlop Tire Co., Standard Spoke & Nipple Co., Cleveland Twist Drill Co. and others, and carry all standard lines of articles.

The catalogue just issued, No. 11, is very profusely illustrated, and prices and descriptions of the various articles plainly presented. Two inserts of heavy enameled paper, printed in colors, add to the attractiveness of the catalogue.

J. W. Stringer has disposed of his interest in the Stringer Automobile Co., Marion, O., and will engage in the automobile business in Detroit, Mich.

PLATFORM SCALES.

BUFFALO SCALE CO.

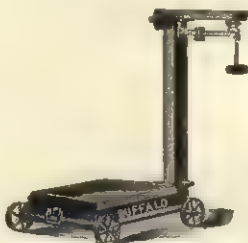


PLATFORM SCALE.

WITH WHEELS.

	Capacity, pounds.	Platform, inches.	Weight Each, pounds.	Each.
No. 1200—	400 x $\frac{1}{4}$	21 x 15	150	\$25 00
No. 1202—	600 x $\frac{1}{4}$	25 x 18	175	33 00
No. 1204—	800 x $\frac{1}{4}$	25 x 17	190	38 00
No. 1206—	1000 x $\frac{1}{4}$	26 x 17	200	43 00
No. 1208—	1200 x $\frac{1}{4}$	28 x 20	225	48 00
No. 1210—	1800 x $\frac{1}{4}$	30 x 21 $\frac{1}{2}$	245	56 00
No. 1212—	2000 x $\frac{1}{4}$	33 x 23	280	75 00
No. 1214—	2500 x $\frac{1}{4}$	33 x 24	290	85 00

The three smaller scales have beams marked to 50 pounds by $\frac{1}{4}$ pound marks; large sizes, beams are marked 100 pounds by $\frac{1}{2}$ pound.



SALT MEAT AND FISH SCALE.

WITH WHEELS.

	Capacity, pounds.	Platform, inches.	Weight Each, pounds.	Each.
No. 1374—	400 x $\frac{1}{4}$	15 x 21 $\frac{1}{4}$	175	\$28 00
No. 1376—	600 x $\frac{1}{4}$	16 x 25	190	35 00
No. 1378—	1000 x $\frac{1}{4}$	17 x 26	225	47 00
No. 1380—	1200 x $\frac{1}{4}$	20 x 28	400	63 00

This scale has a solid iron platform with flange around the edge which protects the working parts of the scale. The pillars of the 1000-pound and 1200-pound scales are braced.

Double Beam can be furnished on any size Platform Scale at \$4.00 extra, but is not recommended for Scales with Drop Lever.



PLATFORM SCALE

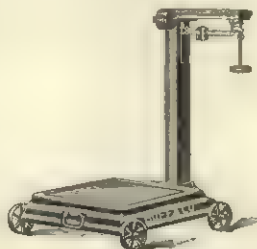
WITH WHEELS AND DROP LEVER, ADAPTED FOR ALL KINDS OF GENERAL WEIGHING, BRASS BEAMS AND POISES.

	Capacity, pounds.	Platform, inches.	Weight Each, pounds.	Each
No. 1236—	400 x $\frac{1}{4}$	21 x 15	150	\$34 00
No. 1238—	600 x $\frac{1}{4}$	25 x 18	190	40 00
No. 1240—	800 x $\frac{1}{4}$	25 x 17	200	45 00
No. 1242—	1000 x $\frac{1}{4}$	26 x 17	240	50 00
No. 1244—	1200 x $\frac{1}{4}$	28 x 20	245	56 00
No. 1246—	1600 x $\frac{1}{4}$	30 x 21 $\frac{1}{2}$	395	69 00
No. 1248—	2000 x $\frac{1}{4}$	33 x 23	490	82 00
No. 1250—	2500 x $\frac{1}{4}$	33 x 24	490	94 00
No. 1252—	3000 x $\frac{1}{4}$	38 x 30	870	125 00

The three smaller scales have beams marked to 50 pounds by $\frac{1}{4}$ pound marks; large sizes, beams are marked 100 pounds by $\frac{1}{2}$ pound.

Drop-Lever Scales are made very heavy and strong, and have pillar braced.

Notched beam with hanging poise furnished when so ordered.



SQUARE PLATFORM SCALE.

DESIGNED TO MEET THE DEMAND FOR SCALES ADAPTED FOR WEIGHING BULKY ARTICLES.

WITH WHEELS.

	Capacity, pounds.	Platform, inches.	Weight Each, pounds.	Each.
No. 1324—	600 x $\frac{1}{4}$	23 x 23	250	\$35 00
No. 1326—	1000 x $\frac{1}{4}$	25 x 25	270	45 00
No. 1328—	1200 x $\frac{1}{4}$	27 x 27	280	53 00
No. 1330—	1600 x $\frac{1}{4}$	29 x 29	490	60 00
No. 1332—	2000 x $\frac{1}{4}$	31 x 31	445	80 00

SCALES.



RENSSELAER PORTABLE PLATFORM.

STEEL PIVOTS. PLATFORM RESTS ON CHILLED BEARINGS WHICH TAKE THE WEAR DIRECTLY OFF THE STEEL PIVOTS, AND THESE PIVOTS REMAINING SHARP, THE SCALE ACTS QUICK AND SENSITIVE.

	Capacity, pounds.	Platform, inches.	Weight Each, pounds.	Each.
No. R8—	800	17 x 24	185	\$30 00
No. R12—	1200	18 x 26	200	37 00



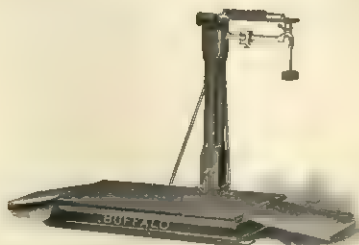
BATHROOM SCALE.

CONSTRUCTED OF IRON AND BRASS THROUGHOUT, WITH A TALL PILLAR WHICH PLACES THE BEAM ON A LEVEL WITH THE EYE, AND IS FINISHED IN BLACK AND GOLD, WHITE AND GOLD, OR PALE BLUE ENAMEL, NICKEL PLATED SLIDING POISE BEAM.

No. 822—Without Measuring Rod, Capacity 350 lbs. x 1 oz., Platform $10\frac{1}{2}$ x $14\frac{1}{2}$ inches,	Each, \$18 00
No. 824—With Measuring Rod, Capacity 350 lbs x 1 oz., Platform $10\frac{1}{2}$ x $14\frac{1}{2}$ inches,	Each, 26 00

This scale is suitable for use in private houses, and especially in bath rooms. If desired, the scale can be graduated in the Metric System, to 125 kilos by 20 gram divisions. Scale is furnished either with or without measuring rod.

Shipping Weight Each 90 Pounds.



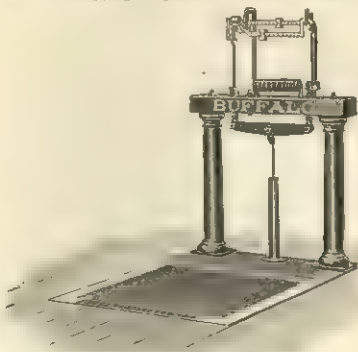
WHEELBARROW SCALE.

WITHOUT WHEELS.

	Capacity, pounds.	Platform, inches.	Each
No. 1451—	1000 x 1	42 x 30	\$70 00
No. 1453—	1500 x 1	49 x 30	80 00
No. 1455—	2000 x 1	44 x 35	93 00
	"A" PATTERN.		
No. 1465—	1000 x 1	39 x 30	60 00

No wood is used in the construction of this scale. It is designed for weighing coal, ore, etc., in wheelbarrow loads. The pillar is braced. A set of inclines is included with each scale.

Shipping Weight Each about 700 Pounds.

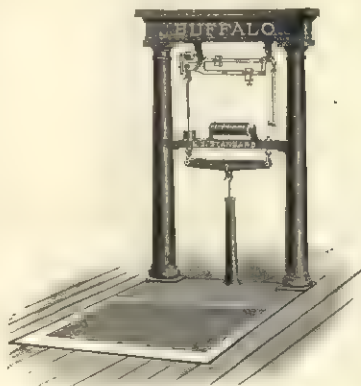


SHORT PILLAR DORMANT SCALE

IRON FRAME, SHORT PILLARS, HARDWOOD SHELF AND UPRIGHT STANDARDS.

	Capacity, pounds.	Platform, inches.	Platform to Pillars, inches.	Weight Each, pounds.	Each.
No. 1731—	2000 x $\frac{1}{2}$	30 x 42	8	775	\$ 84 00
No. 1733—	2500 x $\frac{1}{2}$	36 x 37	14	790	89 00
No. 1735—	2500 x $\frac{1}{2}$	37 x 46	11 $\frac{1}{2}$	750	89 00
No. 1737—	3500 x $\frac{1}{2}$	42 x 44	12 $\frac{1}{2}$	950	108 00
No. 1739—	5000 x 1	48 x 50	23 $\frac{1}{2}$	1650	147 00

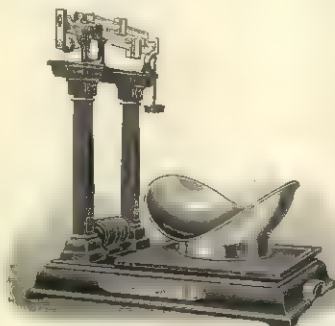
SCALES. BUFFALO SCALE CO.



TWO-PILLAR DORMANT SCALE.

IRON FRAME, TWO IRON PILLARS, DOUBLE BEAM AND GRADUATED COUNTERPOISE.

Nos.	1715	1717	1719	1721	1723	1725	1727
Capacity, pounds,	1200 x 1/2	1800 x 1/2	2500 x 1/2	3500 x 1/2	3500 x 1/2	3500 x 1/2	5000 x 1
Platform, inches,	45 x 55	44 x 54	56 x 57	37 x 40	42 x 44	42 x 44	48 x 50
Platform to Pillars, inches,	73 1/2	75 1/2	14	11 1/2	12 1/2	extra long neck,	2 1/2
Weight Each, pounds,	815	825	890	950	1050	1100	1750
Each,	\$90 00	100.00	105.00	105.00	125.00	138.00	170.00

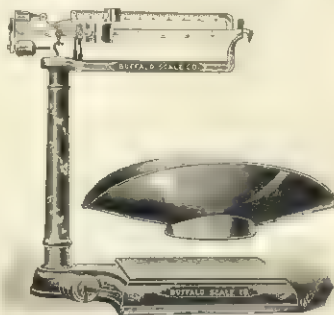


NIAGARA COUNTER SCALE.

BEAM IS SHORT AND ACTS QUICKLY. UPPER BAR IS GRADUATED TO WEIGH 10 LBS. x 1 OZ., LOWER BAR 25 LBS. x 1/2 LB., HEIGHT OVER ALL 24 INCHES, SIZE OF PLATFORM 13 1/2 x 12 1/2 INCHES, PATENT SCOOP BALANCING LATCH, FINISHED IN BLACK AND GOLD, WITH NICKEL PLATED BEAMS, POISES, AND TRIG LOOP.

	Capacity.	Scoop.	Each.
No. 797	255 lbs. x oz.	Large Seamless Tin Scoop.	\$24 00
No. 799	255 lbs. x oz.	Large Seamless Brass Scoop.	25 00
No. 677	255 lbs. x oz.	Marble Slab and no Scoop.	25 00
Extra Agate Bearings for Beam, additional list,			3 00

Shipping Weight Each 90 Pounds.



BOSTON PLATFORM SCALE.

IT IS FINISHED IN BLACK AND GOLD. HAS PATENT SCOOP BALANCING LATCH, NICKEL PLATED BEAM, THE UPPER BAR OF WHICH IS GRADUATED TO WEIGH 10 LBS. x OZ. MARKS, THE LOWER BAR 40 LBS. x 1/2 LB. MARKS. HEIGHT OVER ALL 25 INCHES. SIZE OF PLATFORM 10 x 15 1/2 INCHES.

	Capacity.	Scoop.	Each.
No. 794	255 lbs. x oz.	Large Seamless Tin Scoop.	\$24 00
No. 796	255 lbs. x oz.	Large Seamless Brass Scoop.	25 00
No. 678	255 lbs. x oz.	Marble Slab and no Scoop.	24 00
Extra Agate Bearings for Beam, additional list,			3 00

Shipping Weight Each 75 Pounds.



POST HOLE DIGGERS.



No. 25, HERCULES.

No. 25—Hercules, Cast Steel Blades, Double Handles, ... Per Dozen, \$36 00

Weight Per Dozen, 135 lbs.

Ryan's—Crucible Cast Steel Blades, Stands 5 feet high, Malleable Iron Castings, Spring Steel Cleaner Rods, ... Per Dozen, \$42 00

Weight Per Dozen, 125 lbs.



RYAN'S.

POST HOLE AUGERS.



IWAN'S IMPROVED.

Iwan's,	Sizes, Inches,	6	7	8	9
	Weight, Dozen, Lbs.,	100	105	112	120
	Per Dozen,	\$28.00	30.00	30.00	32.00



TROJAN EARTH DIGGER.



Trojan Automatic Earth Digger, 8 inches, Per Doz., \$33 00

With the Trojan Automatic Earth Digger an average laborer can dig an 8 inch hole, 2½ feet deep, in stiff soil, in two minutes, while an expert can dig a hole this size in less than one minute.

The blades are of high grade steel, ground to an edge, and are securely fastened to movable arms. These arms are operated automatically by a rod running through the long metallic handle, which is made of steel tubing. The arms are so constructed that no soil, water, mud, or even quick sand can prevent their perfect operation.

When the blades are full, lift the Digger, grasp the tubing handle down toward the blades, and with the other hand grasp the small D handle at the top of the rod and turn it at right angles to the wood handle, push down, and blades will open and dirt fall out.

POST HOLE DIGGERS.

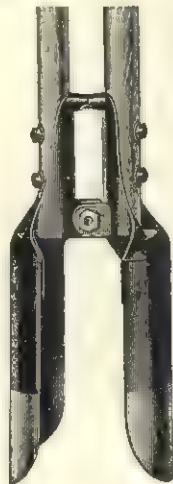


EUREKA

Eureka—Split Handles, 3-inch Cast Steel Blades, White Ash Handles, Length 5 feet. Per Dozen, \$16 00

Weight Per Dozen 100 Pounds,

Extra Eureka Handles, . . . Per Dozen Pairs, . . . 6 50



ATLAS

Atlas—Double Handles, 3-inch Cast Steel Blades Length 5 feet. Per Dozen, \$18 00

Weight Per Dozen 100 Pounds,

POST HOLE DIGGERS.



Cut Shows Iron Handle Champion

CHAMPION

DIAMETER 6 INCHES, LENGTH 5 FEET.

No. 1H Champion, Iron Handles, Per Dozen, \$18 00

Weight Per Dozen 150 Pounds,

No. WH Champion, Wood Handles, Per Dozen, 16 00

Weight Per Dozen 95 Pounds.

POST HOLE AUGERS.



VAUGHAN'S AUGER.

HOLLOW TUBE, COMPLETE.

Vaughan's,	{	Lengths, . . .	5	6	7	8	9
	{	Weight Per Doz.,	63	66	67	72	78
	{	Per Dozen	\$18.00	18.00	18.00	18.00	18.00

CORK FLOATS.



No. 69—Cork Floats, Egg Shape, with Patent Adjustable Line Fastener, { Size, inches, 1 1/4 2 2 1/4 2 3/4 3
Per Dozen, \$1.50 1.70 2.00 2.25 2.50 3.00

Packed One Dozen in a box



Size, inches, ...
No. 67—Cork Floats, Egg Shape, Unbound, Quill Top, ... Per Dozen, 1 1 1/4 1 1/2 2 2 1/4 2 3/4 3
No. 68—Cork Floats, Egg Shape, Bound with Silk, Quill Top, ... " .70 .80 1.00 1.10 1.50 1.70 2.00 3.00

Packed One Dozen in a box.

CORK FLOATS.



2 inch.
No. 72.



2 1/4 inch.
No. 73.



2 3/4 inch.
No. 73.



3 1/4 inch.
No. 73.



3 inch.
No. 72.

PATENT ADJUSTABLE CORK FLOATS, BARREL SHAPE, ENAMELED IN TWO COLORS.

Size, inches,	1 1/4	2	2 1/4	2 3/4	3 1/4	3	3 1/2	4
No. 72—Non-Luminous, Per Dozen,	\$1.20	1.35	1.30	1.40	1.50	1.60	2.30	2.50
No. 73—Luminous, " "	1.30	1.40	1.50	1.60	1.70	1.80	2.50	3.00

Packed One Dozen in a box.



Size, inches,	1 1/4	1 3/4	2	2 1/4	3	3 1/4	4
No. 70—Cork Floats, Barrel Shape, Unbound, Quill Top, Per Dozen,	\$0.60	.65	.70	1.00	1.35	1.50	2.00
No. 71—Cork Floats, Barrel Shape, Bound with Silk, Quill Top, " "	.75	.85	1.00	1.20	1.80	2.30	3.10

Packed One Dozen in a box.

WOOD FLOATS.



No. 60 Wood Floats, Egg Shape, Without Fastener, Painted Two Colors and Varnished, $1\frac{1}{2}$ inches, ... Per Dozen, \$0 20
Packed Twelve Dozen in a box.



No. 61 Wood Floats, Egg Shape, Patent Slotted, Painted Two Colors and Varnished, $1\frac{1}{2}$ inches, ... Per Dozen, \$0 30
Packed Three Dozen in a box.



No. 64 Wood Floats, Egg Shape, Stick Top, Painted Three Colors and Varnished, $1\frac{1}{2}$ inches, ... Per Dozen, \$0 40
Packed Three Dozen in a box.



No. 65 Wood Floats, Egg Shape, Painted Two Colors. { Size, inches, ... $1\frac{1}{2}$ 2 $2\frac{1}{2}$ $2\frac{3}{4}$
Patent Adjustable Line Fastener, { Per Dozen, ... \$0 40 44 50 60
Packed One Dozen in a box.



No. 66 Wood Floats, Barrel Shape, Painted Two Colors, Patent Spiral Line Fastener { Size, inches, ... 3 $\frac{1}{2}$ 4 $\frac{1}{2}$
{ Per Dozen, ... \$0 60 1 00
Packed One Dozen in a box.

PORCUPINE QUILL FLOATS.



No. 80 Porcupine Floats, { Size, inches, ... 4 5 6 7 8 10
{ Per Dozen, ... \$0 50 60 75 1 00 1 25 1 50

QUILL FLOATS.

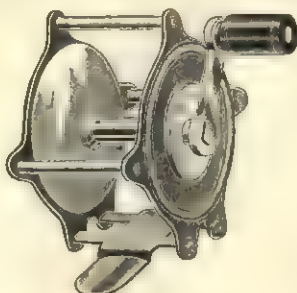


No. 81 Quill, with Wood Plug, Plain, ... Per Dozen, \$0 40

No. 82 Quill, Bound and Varnished, ... Per Dozen, \$0 60

No. 83 Quill, Bound and Varnished, Nicely Finished, ... Per Dozen, \$1 25
Packed Three Dozen in a box.

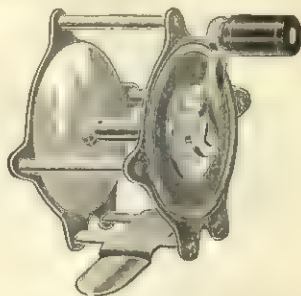
FISHING REELS.



SINGLE ACTION, BRASS.

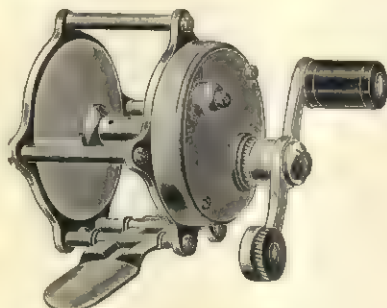
No. 100—40 Yards, ... Per Dozen, \$3 20
 No. 101—80 Yards, ... " 2 00

Packed One-half Dozen in a box.



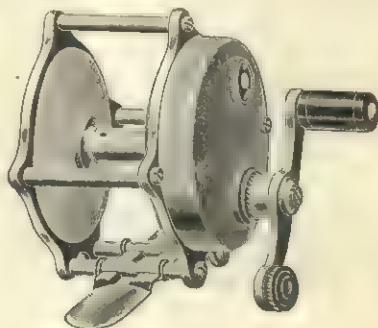
SINGLE ACTION, BRASS, WITH CLICK.

No. 102—40 Yards, ... Per Dozen, \$3 00
 No. 103—80 Yards, ... " 3 50



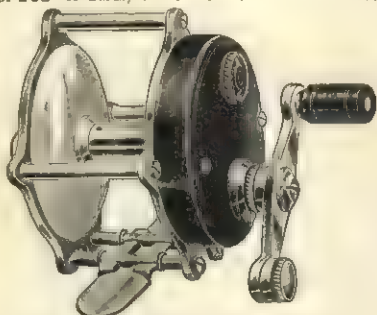
MULTIPLYING, RAISED PILLAR, WITH CLICK AND DRAG, BRASS.

No. 104—60 Yards, ... Per Dozen, \$ 9 50
 No. 105—80 Yards, ... " 10 50



MULTIPLYING, RAISED PILLAR, WITH CLICK AND DRAG, NICKEL-PLATED.

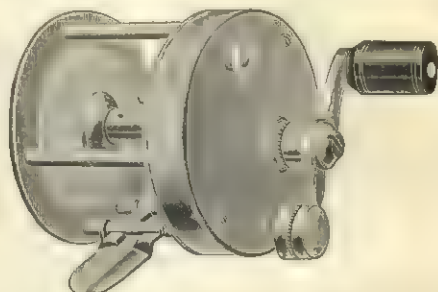
No. 106—60 Yards, ... Per Dozen, \$11 50
 No. 107—80 Yards, ... " 12 00



MULTIPLYING, RUBBER CAP, RAISED PILLAR, WITH CLICK AND DRAG, NICKEL-PLATED.

No. 108—60 Yards, ... Per Dozen, \$12 50
 No. 109—80 Yards, ... " 13 00

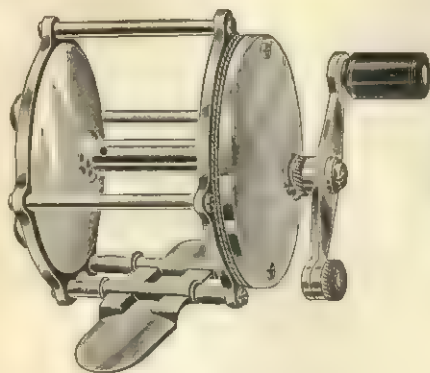
Packed One-twelfth Dozen in a box.



MULTIPLYING, RUBBER CAP, ROUND PLATE, WITH CLICK AND DRAG, NICKEL-PLATED.

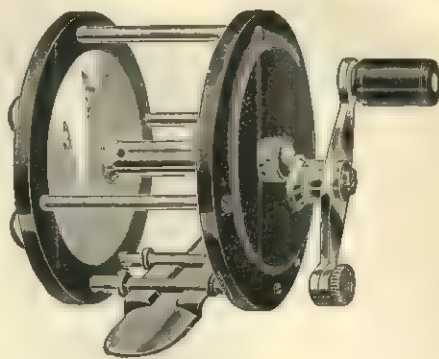
No. 110—60 Yards, ... Per Dozen, \$16 50
 No. 111—80 Yards, ... " 17 50

FISHING REELS.



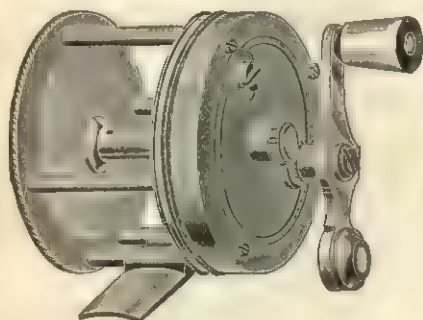
MULTIPLYING, FINE QUALITY, RAISED PILLAR, WITH
CLICK AND DRAG, NICKEL-PLATED.

No. 120—60 Yards, ...	Per Dozen, \$28 00
No. 121—80 Yards, ...	" 28 50
No. 122—100 Yards, ...	" 31 00



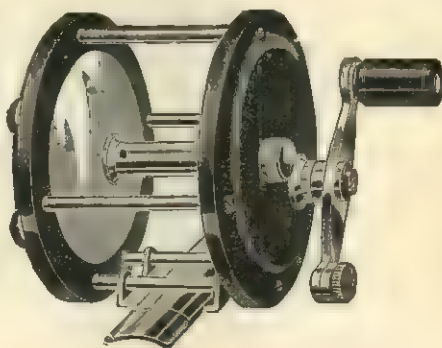
MULTIPLYING, FANCY RUBBER, ROUND PATTERN,
WITH CLICK AND DRAG, NICKEL-PLATED

No. 123—60 Yards, ...	Per Dozen, \$28 00
No. 124—80 Yards, ...	" 29 50
No. 125—100 Yards, ...	" 31 00



QUADRUPLE, FINE QUALITY, ROUND PLATE, WITH CLICK
AND DRAG, STEEL PIVOT, NICKEL-PLATED.

No. 126—60 Yards, ...	Per Dozen, \$37 00
No. 127—80 Yards, ...	" 38 50
No. 128—100 Yards, ...	" 40 00

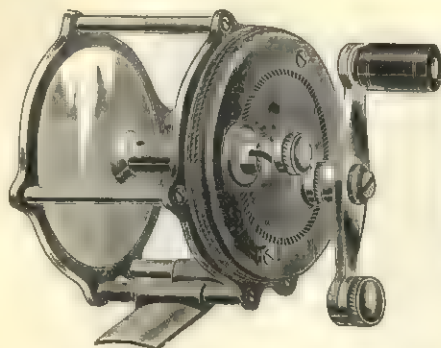


MULTIPLYING, EXTRA QUALITY RUBBER, METAL BOUND,
WITH BACK-SLIDING CLICK, NICKEL-PLATED, STEEL PIVOT.

No. 129—60 Yards, ...	Per Dozen, \$53 00
No. 130—80 Yards, ...	" 55 00
No. 131—100 Yards, ...	" 57 00

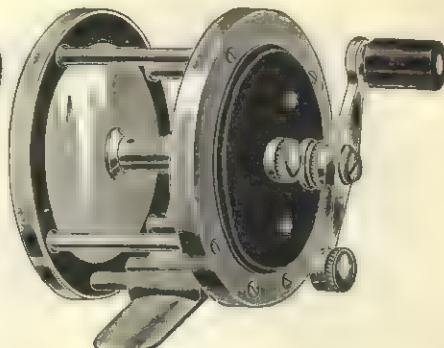
Packed One-twelfth Dozen in a box.

FISHING REELS.



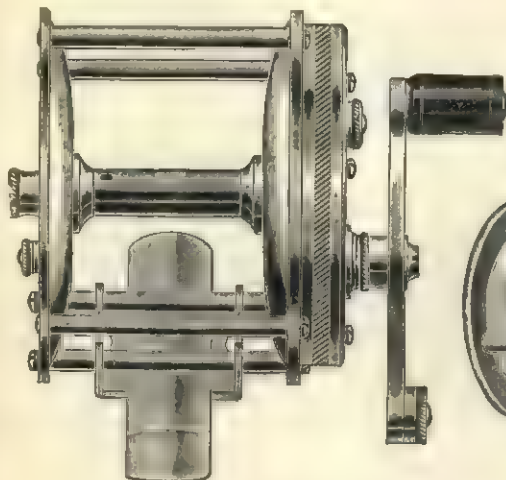
QUADRUPE. FINE QUALITY, RAISED PILLAR, WITH CLICK AND DRAG, STEEL PIVOT, GERMAN SILVER.

No. 140-- 80 Yards, ... Per Dozen, \$74 00
 No. 141--100 Yards, ... " 75 00



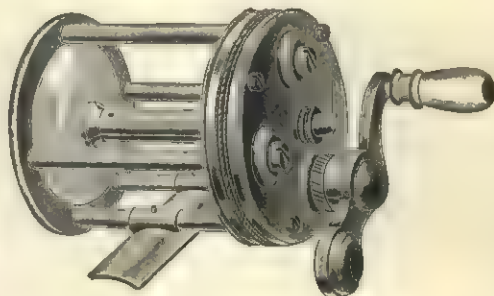
QUADRUPE. EXTRA QUALITY RUBBER, METAL BOUND, WITH BACK-SLIDING CLICK, STEEL PIVOT, GERMAN SILVER.

No. 142-- 80 Yards, ... Per Dozen, \$74 00
 No. 143--100 Yards, ... " 75 00



MULTIPLYING, EXTRA QUALITY, HEAVY FOR SEA FISHING AND TROLLING, BUSHED BEARINGS, WITH CLICK AND DRAG, NICKEL-PLATED.

No. 144--150 Yards, ... Per Dozen, \$48 00
 No. 145--200 Yards, ... " 52 00



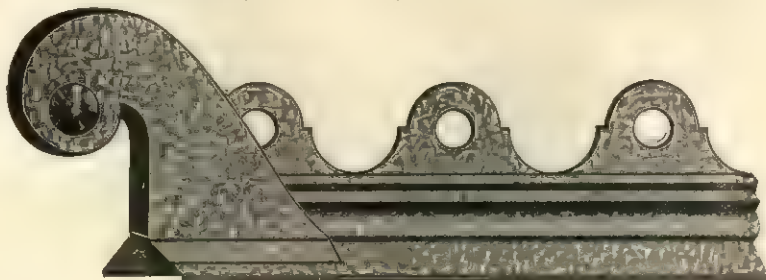
KENTUCKY REEL, EXTRA QUALITY, GERMAN SILVER, FULL STEEL PIVOT, 2-INCH DIAMETER.

No. 146--1½-in. Pillar, Without Jewel, . . . Each, \$21 00
 No. 147--1½-in. Pillar, With Jewel, . . . " 25 00
 No. 148--2-in. Pillar, Without Jewel, . . . " 22 50
 No. 149--2-in. Pillar, With Jewel, . . . " 27 00

Packed One-twelfth Dozen in a box.

GALVANIZED STEEL ROOF CRESTINGS.

ORNAMENTAL, DURABLE AND WEATHER PROOF, ALSO PERFECT LIGHTNING CONDUCTORS, NO SOLDERING IN APPLYING, READY TO NAIL UP, AND FIT ANY PITCH ROOF.



No. A.

No. A—Galvanized Crestings, {	Sizes, inches, ...	8	10	12
	Per Foot, ...	\$0.30	.40	.50
Block Finials for Ridge, 1½ inches Thick, ...				Each, \$0.80

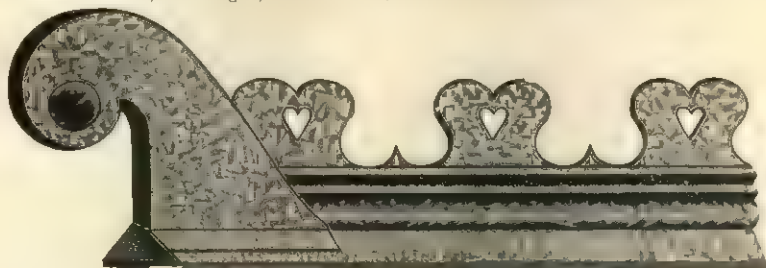
Packed, 8-foot Lengths, 256 feet in a crate, Twelve Finials furnished with each crate.



No. B.

No. B—Galvanized Crestings, {	Sizes, inches, ...	8	10	12
	Per Foot, ...	\$0.30	.40	.50
Block Finials for Ridge, 1½ inches Thick, ...				Each, \$0.80

Packed, 8-foot Lengths, 256 feet in a crate, Twelve Finials furnished with each crate.

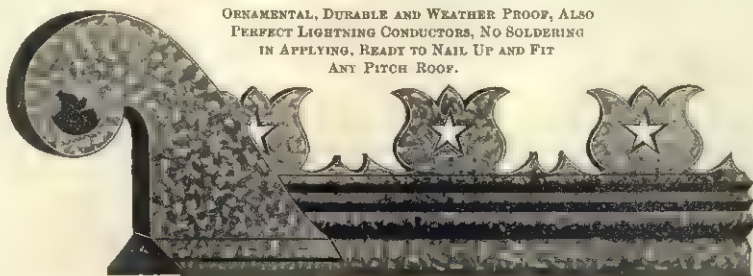


No. C.

No. C—Galvanized Crestings, {	Sizes, inches, ...	8	10	12
	Per Foot, ...	\$0.30	.40	.50
Block Finials for Ridge, 1½ inches Thick, ...				Each, \$0.80

Packed, 8-foot Lengths, 256 feet in a crate, Twelve Finials furnished with each crate.

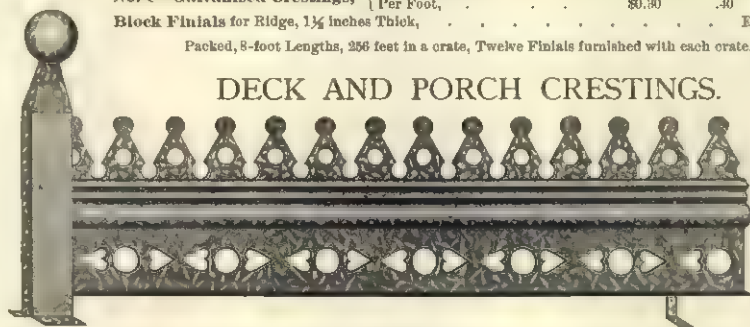
GALVANIZED STEEL ROOF CRESTINGS.



No. C.				
No. C—Galvanized Crestings,	{ Sizes, inches,	8	10	12
	{ Per Foot,	\$0.30	.40	.50
Block Finials for Ridge, 1½ inches Thick,				Each, \$0.80

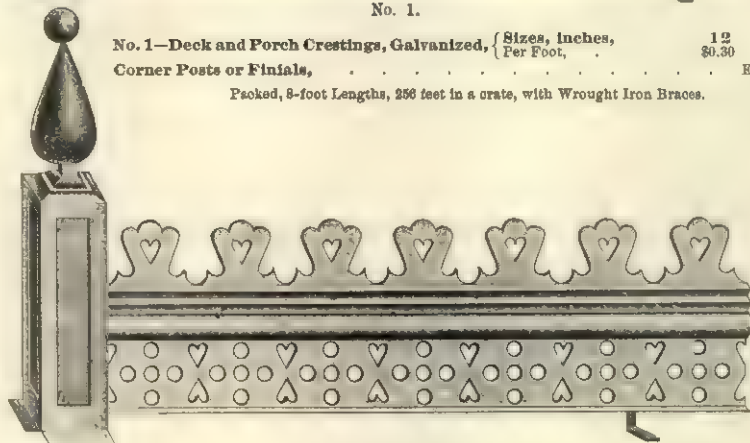
Packed, 8-foot Lengths, 256 feet in a crate, Twelve Finials furnished with each crate.

DECK AND PORCH CRESTINGS.



No. 1.				
No. 1—Deck and Porch Crestings, Galvanized,	{ Sizes, inches,	12	17	
	{ Per Foot,	\$0.30	.50	
Corner Posts or Finials,				Each, \$0.80

Packed, 8-foot Lengths, 256 feet in a crate, with Wrought Iron Braces.

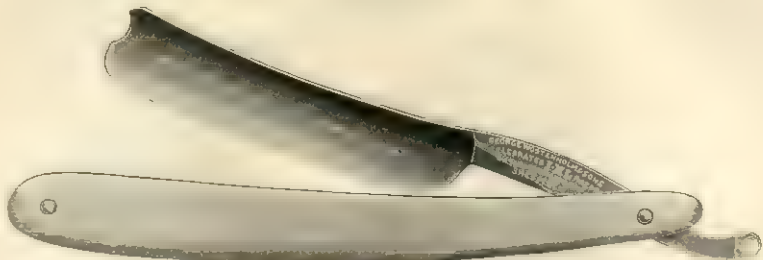


No. 2.				
No. 2—Deck and Porch Crestings, Galvanized,	{ Sizes, inches,	12	17	
	{ Per Foot,	\$0.30	.50	
Corner Posts or Finials,				Each, \$0.80

Packed, 8-foot Lengths, 256 feet in a crate, with Wrought Iron Braces.

RAZORS.

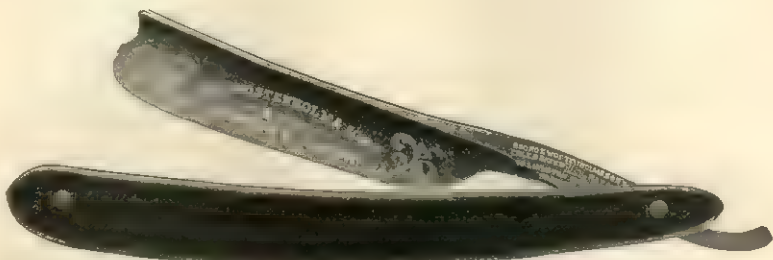
GEO. WOSTENHOLM & SON.



No. 01909, WOSTENHOLM.

No. 01909—Wostenholm's I-XL, Hollow Ground, $\frac{5}{8}$ -inch Blades, **Black** Handles,

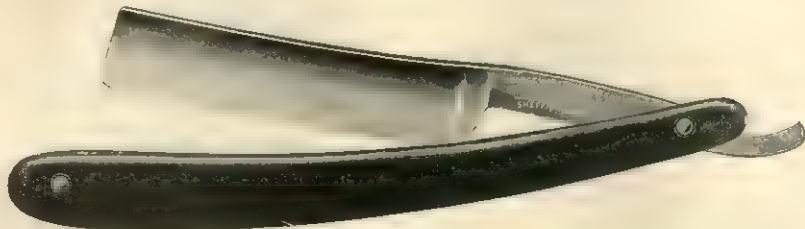
Per Dozen, \$12 00



No. 5771 $\frac{1}{2}$, WOSTENHOLM.

No. 5771 $\frac{1}{2}$ —Wostenholm's I-XL, Hollow Ground, $\frac{5}{8}$ -inch Blades, **Black** Handles,

Per Dozen, \$16 00



No. 01163, WOSTENHOLM.

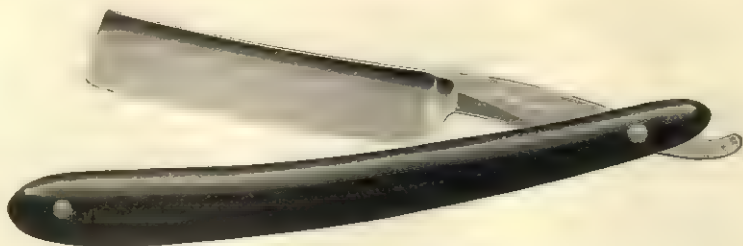
No. 01163 -Wostenholm's I-XL, Hollow Ground, $\frac{5}{8}$ -inch Blades, **Black** Handles,

Per Dozen, \$18 00

Packed One-half Dozen in a box.

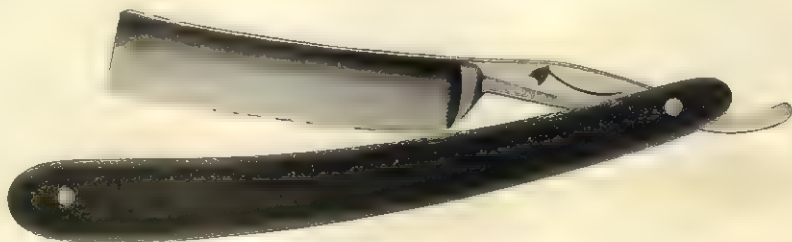
RAZORS.

GEO. WOSTENHOLM & SON.



No. 02363, WOSTENHOLM.

No. 02363 - Wostenholm's Pipe, Hollow Ground, $\frac{5}{8}$ -inch Blades, Black Handles, . . . Per Dozen, \$18 00



No. 01461, WOSTENHOLM.

No. 01461 - Wostenholm's Pipe, Full Hollow Ground, $\frac{5}{8}$ -inch Blades, Black Handles, . . . Per Dozen, \$24 00



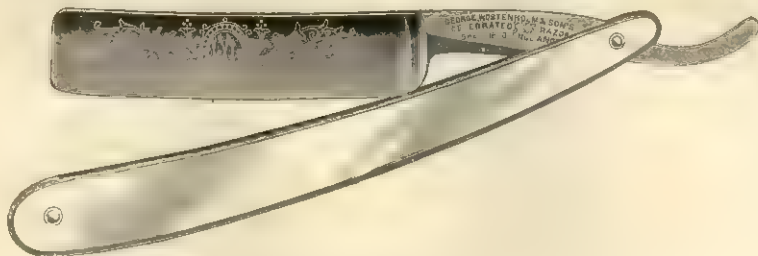
No. 01324, WOSTENHOLM.

No. 01324 - Wostenholm's I•XL, Hollow Ground, $\frac{5}{8}$ -inch Blades, Etched in Gold, Celluloid Handles, Per Dozen, \$24 00

Packed One-half Dozen in a box.

RAZORS.

GEO. WOSTENHOLM & SON.



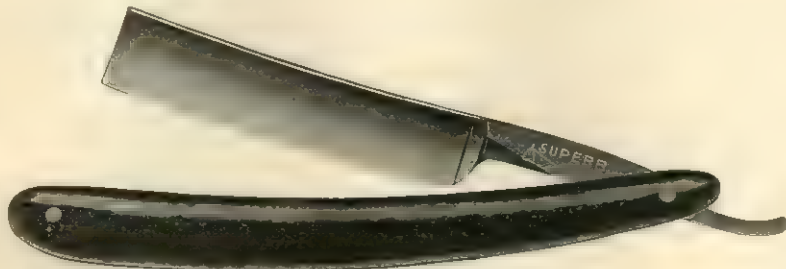
No. 01051, WOSTENHOLM.

No. 01051—Wostenholm's I-XL, Hollow Ground, $\frac{5}{8}$ -inch Blades, Full Crocus Finish, Celluloid Handles, Per Dozen, \$29 00



No. 0806, WOSTENHOLM.

No. 0806—Wostenholm's Pipe, Extra Hollow Ground, $\frac{5}{8}$ -inch Blades, Black Handles, Per Dozen, \$36 00



No. 0100, SUPERB.

No. 0100—Wostenholm's Superb Pipe, Extra Full Hollow Ground, $\frac{5}{8}$ -inch Blades, Black Handles, Per Dozen, \$36 00
Packed One-half Dozen in a box.

"NEW MODEL" STAR SAFETY RAZORS.



Cut Shows Front View



Cut Shows Razor Complete



Cut Shows Inside View of Frame and Automatic Lock



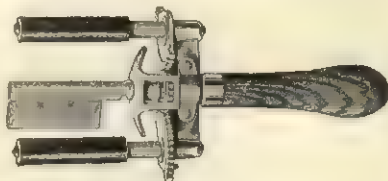
Cut Shows Holder and Blade in Position for Stropping

"NEW MODEL" STAR SAFETY RAZOR.

THESE RAZORS ARE ENTIRELY OPEN AT THE FRONT, NO EXTERNAL PROJECTIONS; LATHER CAN BE REMOVED CONVENIENTLY WITHOUT INTERFERING WITH SHAVING, AS RAZOR IS OPENED AND CLOSED BY A SLIGHT PRESSURE. THE LITTLE STOPS ON EACH SIDE OF THE GUARD ACT AS A GUIDE AND ARE CORRECTLY SET FOR THE ORDINARY BEARD. THE FORK-SHAPED TEETH IN THE GUARD PREVENT THE NUISANCE OF CLOGGING UP WITH LATHER AND HAIR. RAZOR BLADES ARE FORGED OF THE HIGHEST GRADE OF DOUBLE REFINED ENGLISH STEEL. THEY ARE FULLY CONCAVE AND TEMPERED

Star Safety Razors—Complete, ... Per Dozen, \$34 00
 Packed One in an enameled tin box
 Extra Blades for Star Safety Razors, ... Per Dozen, 12 00
 Packed One in an enameled tin box.

STAR STROPPING MACHINES.



STAR STROPPING MACHINE.

Star Stropping Machines, ... Per Dozen, \$30 00

The blade is placed into the central blade holder between the two friction rollers and the device placed upon the strop in such a manner that the blade and rollers rest on the strop, keeping the side marked up as shown on the device. The machine is moved forward and backward over the strop, and every time it is reversed the blade is automatically turned on its back and a fresh face or side presented to the strop.

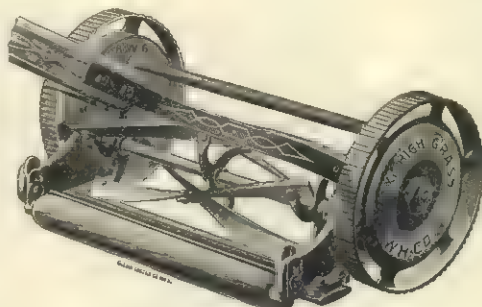
LAWN MOWERS.



W. H. CO., BALL BEARING.

FOUR REVOLVING CUTTER BLADES, RAISED WHEEL, ADJUSTABLE THROUGHOUT, SILENT IN OPERATION
FOR DESCRIPTION OF MECHANISM SEE PAGE 221. VARNISHED HARD WOOD HANDLE.

W. H. Co., BB Low Grass,	Width of Cut, inches, ...	14	16	18
	Diameter of Drive Wheel, inches, ...	8	8	8
	Weight Boxed, lbs., ...	45	48	50
	Each, ...	\$17.00	19.00	21.00
W. H. Co., BB High Grass,	Width of Cut, inches, ...	14	16	18
	Diameter of Drive Wheel, inches, ...	9 1/2	9 1/2	9 1/2
	Weight Boxed, lbs., ...	48	51	57
	Each, ...	\$17.00	19.00	21.00



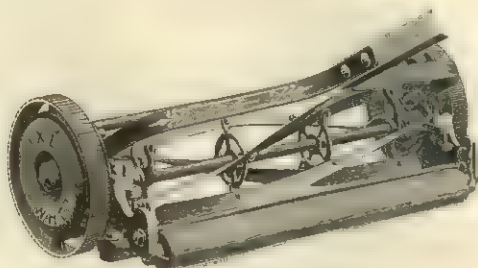
W. H. CO., "IXL" HIGH GRASS.

FOUR REVOLVING CUTTER BLADES, RAISED WHEEL, SILENT PATENT SPRING BED KNIFE, HIGH SPEED.
VARNISHED HARD WOOD HANDLES, FINISHED IN MAROON, RED, GREEN AND GOLD.

W. H. Co., "IXL," High Grass,	Width of Cut, inches, ...	14	16	18
	Diameter of Drive Wheel, inches, ...	9 1/2	9 1/2	9 1/2
	Diameter of Cylinder, inches, ...	6	6	6
	Number of Blades, ...	4	4	4
	Weight Boxed, lbs., ...	47	49	51
	Each, ...	\$17.00	19.00	21.00

Extra parts for Mowers can be had from factory. When ordering always state name, length of cut of Mower, and letter and number of casting.

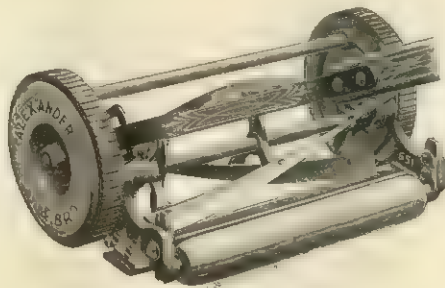
LAWN MOWERS.



W. H. CO. "IXL" LOW GRASS.

FOUR REVOLVING CUTTER BLADES, RAISED WHEELS, SILENT RATCHET, SPRING BED KNIFE.
VARNISHED HARDWOOD HANDLE, FINISHED IN RED AND GOLD.

W. H. Co. "IXL" Low Grass,	Width of Cut, inches, ...	12	14	16	18
	Diameter of Drive Wheel, inches, ...	8	8	8	8
	Diameter of Cylinder, inches, ...	5½	5½	5½	5½
	Number of Blades, ...	4	4	4	4
	Weight Boxed, lbs., ...	41	44	46	49
	Each, ...	\$15.00	17.00	19.00	21.00



ALEXANDER & BRO

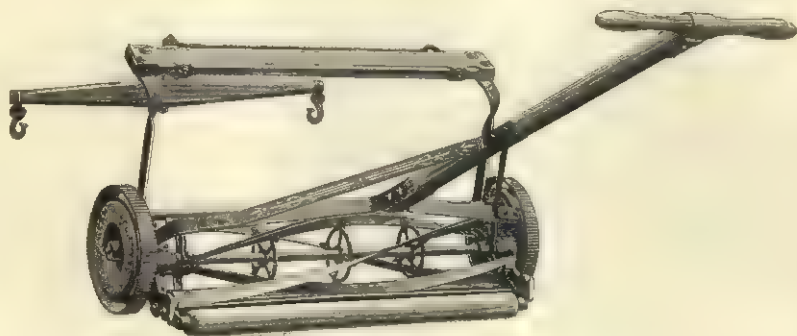
THREE REVOLVING CUTTER BLADES, BALL PIVOT BED KNIFE, SELF SHARPENING, DOUBLE GEARED, PHOSPHOR BRONZE
JOURNAL BEARINGS, WROUGHT IRON HANDLE BRACES, VARNISHED HARDWOOD
HANDLES, PAINTED RED AND GREEN.

Alexander & Bro.,	Width of Cut, inches, ...	12	14	16	18
	Diameter of Drive Wheel, inches, ...	7½	7½	7½	7½
	Size of Cylinder, inches, ...	5½	5½	5½	5½
	Number of Blades, ...	3	3	3	3
	Weight Boxed, lbs., ...	38	40	42	45
	Each, ...	\$15.00	17.00	19.00	21.00

For explanation of inside mechanism See Page 221.

Extra parts for Mower can be had from factory When ordering always state name, length of cut of Mower, and letter or number of casting.

LAWN MOWERS



STYLE R, PONY MOWER

Style R—31 inch High Grass Mower with Pony Attachment, Four Blades, Diameter of Cutter 7 in. h, Lower Straight Blade is of the Laid Steel Pattern, the Single Tree or Pull is so arranged that it will draw from either end of the Mower, so pony can walk on cut grass. Draft Attachment can be removed without trouble. Each. \$30 00
Height of Drive Wheel 10 inches. Weight 80 Pounds.

Style BB— Same as Style R, but with Ball Bearings, ... Each. 30 00

GARDEN OR LAWN ROLLERS.



Nos 20 and 30.

No. 20—Two Sections, 12 inches Long, 20 inch Diameter, Weight 270 lbs., ... Each, \$30 00
No. 30—Two Sections, 12 inches Long, 30 inch Diameter, Weight 450 lbs., ... Each, 40 00

By the addition of weights along the shaft, as shown in the cut, greater weight is obtained, while they are so adjusted that when not in use the handle is thrown up from the ground and kept clean and out of the way

TACKLE BLOCKS.

REGULAR INSIDE IRON STRAPPED, LOOSE HOOK, HARCOURT'S PATENT.



Without Becket.

With Becket.

Without Becket.

With Becket.

Without Becket.

With Becket.

SINGLE SHEAVE.

DOUBLE SHEAVE.

TRIPLE SHEAVE.

SINGLE SHEAVE.

WITH OR WITHOUT BECKET.

Nos.	4/S	5/S	6/S	7/S	8/S	9/S	10/S	12/S	14/S	16/S
Size of Shell, inches.	4	5	6	7	8	9	10	12	14	16
For Rope Diameter, inches.	$\frac{1}{2}$	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{3}{4}$	1	1	1 $\frac{1}{2}$	1 $\frac{3}{4}$	1 $\frac{3}{4}$	1 $\frac{3}{4}$
Size of Sheave, inches.	2 $\frac{1}{2}$ x $\frac{3}{4}$	3 x $\frac{3}{4}$	3 $\frac{1}{2}$ x 1	4 $\frac{1}{2}$ x 1	4 $\frac{3}{4}$ x 1 $\frac{1}{2}$	5 $\frac{1}{2}$ x 1 $\frac{1}{2}$	6 $\frac{1}{2}$ x 1 $\frac{1}{2}$	8 x 1 $\frac{1}{2}$	9 $\frac{1}{2}$ x 1 $\frac{1}{2}$	11 x 1 $\frac{1}{2}$
Depth of Groove, inches.	$\frac{3}{8}$	$\frac{3}{8}$	$\frac{3}{8}$	$\frac{3}{8}$	$\frac{3}{8}$	$\frac{3}{8}$	$\frac{3}{8}$	$\frac{3}{8}$	$\frac{3}{8}$	$\frac{3}{8}$
Regular, Each.	\$0.55	.50	1.10	1.30	1.55	1.85	2.75	4.45	7.00	10.00
Improved Roller, Bushed, Each.	1.20	1.35	1.50	1.70	2.25	2.50	3.50	5.50	8.15	11.50

DOUBLE SHEAVES.

WITH OR WITHOUT BECKET.

Nos.	4/D	5/D	6/D	7/D	8/D	9/D	10/D	12/D	14/D	16/D
Size of Shell, inches.	4	5	6	7	8	9	10	12	14	16
For Rope Diameter, inches.	$\frac{1}{2}$	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{3}{4}$	1	1	1 $\frac{1}{2}$	1 $\frac{3}{4}$	1 $\frac{3}{4}$	1 $\frac{3}{4}$
Size of Sheave, inches.	2 $\frac{1}{2}$ x $\frac{3}{4}$	3 x $\frac{3}{4}$	3 $\frac{1}{2}$ x 1	4 $\frac{1}{2}$ x 1	4 $\frac{3}{4}$ x 1 $\frac{1}{2}$	5 $\frac{1}{2}$ x 1 $\frac{1}{2}$	6 $\frac{1}{2}$ x 1 $\frac{1}{2}$	8 x 1 $\frac{1}{2}$	9 $\frac{1}{2}$ x 1 $\frac{1}{2}$	11 x 1 $\frac{1}{2}$
Depth of Groove, inches.	$\frac{3}{8}$	$\frac{3}{8}$	$\frac{3}{8}$	$\frac{3}{8}$	$\frac{3}{8}$	$\frac{3}{8}$	$\frac{3}{8}$	$\frac{3}{8}$	$\frac{3}{8}$	$\frac{3}{8}$
Regular, Each.	\$1.00	1.75	2.00	2.40	2.85	3.40	4.50	7.50	10.50	15.00
Improved Roller, Bushed, Each.	2.25	2.35	2.55	3.35	4.15	4.70	6.00	9.20	12.50	18.00

TRIPLE SHEAVES.

WITH OR WITHOUT BECKET.

Nos.	4/T	5/T	6/T	7/T	8/T	9/T	10/T	12/T	14/T	16/T
Size of Shell, inches.	4	5	6	7	8	9	10	12	14	16
For Rope Diameter, inches.	$\frac{1}{2}$	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{3}{4}$	1	1	1 $\frac{1}{2}$	1 $\frac{3}{4}$	1 $\frac{3}{4}$	1 $\frac{3}{4}$
Size of Sheave, inches.	2 $\frac{1}{2}$ x $\frac{3}{4}$	3 x $\frac{3}{4}$	3 $\frac{1}{2}$ x 1	4 $\frac{1}{2}$ x 1	4 $\frac{3}{4}$ x 1 $\frac{1}{2}$	5 $\frac{1}{2}$ x 1 $\frac{1}{2}$	6 $\frac{1}{2}$ x 1 $\frac{1}{2}$	8 x 1 $\frac{1}{2}$	9 $\frac{1}{2}$ x 1 $\frac{1}{2}$	11 x 1 $\frac{1}{2}$
Depth of Groove, inches.	$\frac{3}{8}$	$\frac{3}{8}$	$\frac{3}{8}$	$\frac{3}{8}$	$\frac{3}{8}$	$\frac{3}{8}$	$\frac{3}{8}$	$\frac{3}{8}$	$\frac{3}{8}$	$\frac{3}{8}$
Regular, Each.	\$2.15	2.25	2.90	3.50	4.25	4.75	6.25	10.65	15.00	22.00
Improved Roller, Bushed, Each.	3.25	3.50	4.40	5.00	6.00	7.25	8.50	12.20	18.45	26.50

EXTRA IRON SHEAVES.



COMMON IRON BUSHED, WITH POLISHED SCORES.

For Block, inches.	4	5	6	7	8	10	12	14	16
Size of Sheave, inches.	2 $\frac{1}{2}$ x $\frac{3}{4}$	3 x $\frac{3}{4}$	3 $\frac{1}{2}$ x 1	4 $\frac{1}{2}$ x 1	4 $\frac{3}{4}$ x 1 $\frac{1}{2}$	5 $\frac{1}{2}$ x 1 $\frac{1}{2}$	6 $\frac{1}{2}$ x 1 $\frac{1}{2}$	8 x 1 $\frac{1}{2}$	9 $\frac{1}{2}$ x 1 $\frac{1}{2}$
Depth of Groove, inches.	$\frac{3}{8}$	$\frac{3}{8}$	$\frac{3}{8}$	$\frac{3}{8}$	$\frac{3}{8}$	$\frac{3}{8}$	$\frac{3}{8}$	$\frac{3}{8}$	$\frac{3}{8}$
Each.	\$0.12	.20	.35	.50	.55	.55	.90	1.40	1.70

SNATCH BLOCKS.



WOOD SHELL.



STEEL SHELL.

WOOD SHELL, IRON STRAPPED, DROP LINK, IRON BUSHED.

Size of Shell, inches,	6	8	10	12	14	16	18	20	22	24
For Rope Diameter, inches,	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	$1\frac{3}{4}$	2	$2\frac{1}{4}$	$2\frac{1}{2}$	3	$3\frac{1}{2}$
Size of Sheave, inches,	$3 \times 1\frac{1}{8}$	$4\frac{1}{2} \times 1\frac{1}{2}$	$5\frac{1}{4} \times 1\frac{3}{8}$	$6\frac{1}{4} \times 2\frac{1}{8}$	$8 \times 2\frac{1}{4}$	$9 \times 2\frac{5}{8}$	10×3	$11 \times 3\frac{1}{2}$	$11\frac{1}{2} \times 4\frac{1}{4}$	$12\frac{1}{2} \times 4\frac{1}{2}$
Depth of Groove, inches,	$\frac{1}{4}$	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{5}{8}$	$\frac{3}{4}$	1	1	$1\frac{1}{2}$	$1\frac{1}{2}$	$1\frac{1}{2}$
Each,	\$4.00	5.75	8.50	10.00	13.00	17.00	25.00	35.00	55.00	70.00

STEEL SHELL, DROP LINK, IRON BUSHED.

Size of Shell, inches,	6	8	10	12	14	16	18	20	22	24
For Rope Diameter, inches,	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	$1\frac{3}{4}$	2	$2\frac{1}{4}$	$2\frac{1}{2}$	3	$3\frac{1}{2}$
Size of Sheave, inches,	$3 \times 1\frac{1}{8}$	$4\frac{1}{2} \times 1\frac{1}{2}$	$5\frac{1}{4} \times 1\frac{3}{8}$	$6\frac{1}{4} \times 2\frac{1}{8}$	$8 \times 2\frac{1}{4}$	$9 \times 2\frac{5}{8}$	10×3	$11 \times 3\frac{1}{2}$	$11\frac{1}{2} \times 4\frac{1}{4}$	$12\frac{1}{2} \times 4\frac{1}{2}$
Depth of Groove, inches,	$\frac{1}{4}$	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{5}{8}$	$\frac{3}{4}$	1	1	$1\frac{1}{2}$	$1\frac{1}{2}$	$1\frac{1}{2}$
Each,	\$4.75	6.35	9.00	11.00	14.00	19.00	28.00	36.00	52.00	72.00

STEEL TACKLE BLOCKS.

WITH LOOSE HOOKS.



SINGLE.



DOUBLE.

SINGLE SHEAVE, STEEL SHELL, IRON BUSHED.

WITH OR WITHOUT BECKET.

Size of Shell, inches,	4	5	6	8	10	12	14
For Rope Diameter, inches,	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	$1\frac{3}{4}$
Size of Sheave, inches,	$2\frac{1}{4}$	3	$3\frac{1}{2}$	$4\frac{1}{2}$	$5\frac{1}{2}$	$6\frac{1}{2}$	$7\frac{1}{2}$
Each,	\$0.90	1.00	1.25	1.85	3.10	5.00	7.50

DOUBLE SHEAVE, STEEL SHELL, IRON BUSHED.

WITH OR WITHOUT BECKET.

Size of Shell, inches,	4	5	6	8	10	12	14
For Rope Diameter, inches,	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	$1\frac{3}{4}$
Size of Sheave, inches,	$2\frac{1}{4}$	3	$3\frac{1}{2}$	$4\frac{1}{2}$	$5\frac{1}{2}$	$6\frac{1}{2}$	$7\frac{1}{2}$
Each,	\$1.75	1.90	2.25	3.20	5.10	8.25	11.75

WROUGHT IRON BLOCKS.

FOR WIRE ROPE.



DIAMOND SHELL.



OVAL SHELL.



STIFF SWIVEL HOOKS, DIAMOND SHELL.

REGULAR IRON BUSHED.

Size Sheaves, inches,	10	12	14	16	18
For Rope, Diameter, inches,	$\frac{3}{4}$	$\frac{1}{2}$	$\frac{3}{4}$	$\frac{7}{8}$	$\frac{1}{2}$
Single, Each,	\$10.00	12.00	14.00	16.00	20.00
Double, Each,	16.00	17.00	19.00	23.00	28.00

PHOSPHOR BRONZE OR METALINE, SELF-LUBRICATING BUSHED.

Size Sheaves, inches,	10	12	14	16	18
For Rope, Diameter, inches,	$\frac{3}{4}$	$\frac{1}{2}$	$\frac{3}{4}$	$\frac{7}{8}$	$\frac{1}{2}$
Single, Each,	\$18.00	16.00	17.00	19.50	24.00
Double, Each,	21.00	23.00	25.00	29.50	36.00

LOOSE HOOKS, OVAL SHELL.

REGULAR IRON BUSHED.

Size Sheaves, inches,	10	12	14	16	18
For Rope, Diameter, inches,	$\frac{3}{4}$	$\frac{1}{2}$	$\frac{3}{4}$	$\frac{7}{8}$	$\frac{1}{2}$
Single, Each,	\$10.00	12.00	14.00	16.00	20.00
Double, Each,	16.00	17.00	19.00	22.00	28.00

PHOSPHOR BRONZE OR METALINE, SELF-LUBRICATING BUSHED.

Size Sheaves, inches,	10	12	14	16	18
For Rope, Diameter, inches,	$\frac{3}{4}$	$\frac{1}{2}$	$\frac{3}{4}$	$\frac{7}{8}$	$\frac{1}{2}$
Single, Each,	\$13.00	15.00	17.00	19.50	24.00
Double, Each,	21.00	23.00	25.00	29.00	36.00

IRON SHEAVES.

FOR WIRE ROPE, DEEP GROOVES.



Iron Bushed.



Phosphor Bronze or Metaline Bushed.

Diameter, inches,	6	7	8	9	10	12	14	16	18
Thickness, inches,	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$
Hole for Pin Full Size, inches,	$\frac{3}{8}$	$\frac{3}{8}$	$\frac{3}{8}$	$\frac{7}{8}$	$\frac{7}{8}$	1	1 $\frac{1}{8}$	1 $\frac{1}{2}$	1 $\frac{3}{4}$
Iron Bushed, Each,	\$0.70	1.20	1.35	1.50	1.75	2.85	3.60	4.50	6.25
Phosphor Bronzed Bushed, Each,	1.85	2.50	2.65	3.25	3.75	4.75	7.00	8.50	10.00

HAND SAWS.



BLUE JACKET.

WARRANTED SPRING STEEL, BLUED BLADE, SKEW BACK, BEECH HANDLE, FOUR IMPROVED BRASS SCREWS.

Blue Jacket—Hand Saw, 26 inch, 6 to 10 Points, ... Per Doz., \$18 00

Packed one-third Dozen in a box.

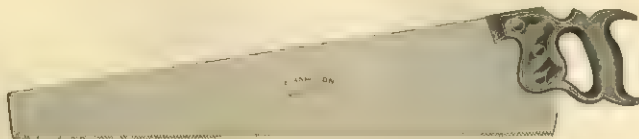


FARMER'S PET.

CAST STEEL BLADE, POLISHED EDGES, BEECH HANDLE, THREE SAW SCREWS.

Farmer's Pet—Hand Saw, 26 inch, Assorted 6 to 8 Points, one-half Dozen in a box, ... Per Doz., \$10 00

Farmer's Pet—Hand Saw, 26 inch, Assorted 7 to 9 Points, one-half Dozen in a box, ... Per Doz., 10 00



CHAMPION.

CAST STEEL BLADE, WALNUT HANDLE, STEEL PLATE ON HANDLE, THREE RAISED SCREWS

No. 109—Champion Hand Saw, 26 inch, Assorted 6 to 8 Points, one-half Dozen in a box, ... Per Doz., \$12 00

No. 100 Champion Hand Saw, 26 inch, Assorted 7 to 9 Points, one-half Dozen in a box, ... Per Doz., 12 00

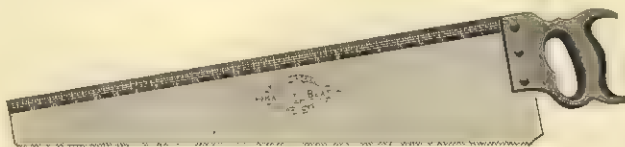
HAND SAWS.



ENTERPRISE

CAST STEEL, BEECH HANDLE, COMBINATION SAW, WITH 24-INCH SQUARE AND RULE, THREE BRASS SCREWS.

Enterprise Hand Saw, 26 inch, assorted 6 to 8 Points, one-half Dozen in a box, ... Per Doz., \$12 00
Enterprise Hand Saw, 26 inch, assorted 7 to 9 Points, one-half Dozen in a box, ... Per Doz., 12 00



HARD TO BEAT.

CAST STEEL, BEECH HANDLE, COMBINATION SAW, WITH 24-INCH SQUARE AND RULE, THREE BRASS SCREWS.

Hard to Beat Hand Saw, 26 inch, assorted 6 to 8 Points, one-half Dozen in a box, ... Per Doz., \$12 00
Hard to Beat Hand Saw, 26 inch, assorted 7 to 9 Points, one-half Dozen in a box, ... Per Doz., 12 00

PANEL SAWS.



WITTE'S EXTRA.

EXTRA CAST STEEL, GRAINED BLADE, SKEW BACK, CARVED APPLE HANDLE, FOUR IMPROVED BRASS SCREWS.

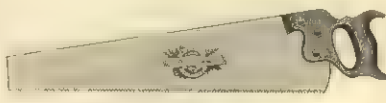
Witte's Extra Panel Saw, 20 inch, 8 to 12 Points, ... Per Doz., \$18 00



W. H. CO. "IXL."

LONDON SPRING STEEL, GRAINED BLADE, BEECH HANDLE, THREE IMPROVED SCREWS.

W. H. Co. "IXL" Panel	inches, ... 18	20
	Points, assorted, 8 to 10	8 to 12
	Per Dozen, . . . \$15.00	\$16.00



OUR OWN.

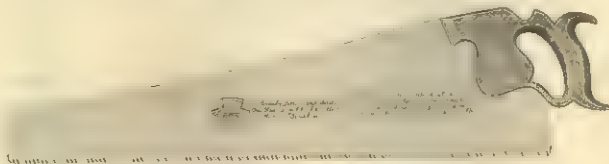
CAST STEEL, POLISHED BLADE, BEECH HANDLE, THREE BRASS SCREWS.

Our Own Panel	inches, ... 18	20
	Points, ... 8 to 10	8 to 12
	Per Dozen, . . . \$8.00	\$8.50

Packed one-third Dozen in a box.

HAND, RIP AND PANEL SAWS.

HENRY DISSTON & SONS.



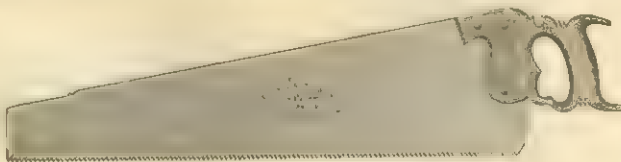
ACME. No. 120, HAND SAW.

EXTRA LONDON SPRING STEEL, WARRANTED, CARVED AND POLISHED APPLE HANDLE, SKEW-BACK, FIVE SCREWS.

No. 120—Acme Hand Saws, 26 inches, 6 to 12 Points, ... Per Doz., \$32 00

Packed one-third Dozen in a box.

A fast smoothing Saw, particularly adapted for general work sawing metres and in all instances where rapid, smooth cutting is required. In sharp use, it must be used with the same angle as they leave the factory. They are made to run without set and are so high, temper that any attempt to set them will break the teeth. We do not warrant these Saws broken from this cause. In order to the property of a new set Back in 90 days expressly for this purpose, should be used.



No. 12, HAND SAW.

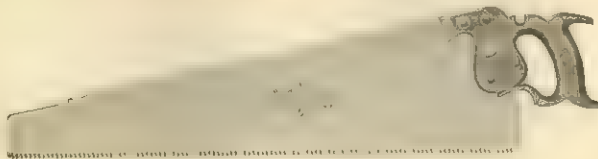
EXTRA REFINED LONDON SPRING STEEL, SELECTED AND HIGHLY POLISHED BLADE. HANDLE CARVED AND POLISHED, FOUR IMPROVED BRASS SCREWS.

No. 12—Disston Hand Saws, 26 inches, 6 to 12 Points, ... Per Doz., \$38 00

No. 12—Disston Rip Saws, 28 inches, 4 to 6 Points, ... Per Doz., 32 00

No. 12 Disston Panel Saws, 8 to 12 Points	Sizes inches	18	20	22
	Per Doz a	\$21 00	22 00	24 00

Packed one-third Dozen in a box.



No. 7, HAND SAW.

CAST-STEEL, WARRANTED, BEECH HANDLE, POLISHED EDGE, FOUR IMPROVED SCREWS, GRAINED BLADE.

No. 7—Disston Hand Saws, 26 inches, 6 to 12 Points, ... Per Doz., \$30 00

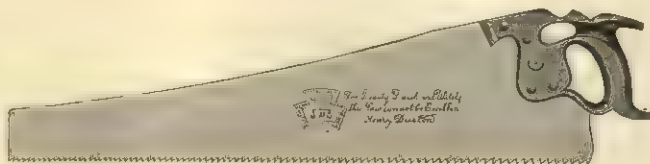
No. 7—Disston Rip Saws, 28 inches, 4 to 6 Points, ... Per Doz. 23 50

No. 7—Disston Panel Saws, {	Sizes inches	18	20	22
	Per Dozen	\$14 00	16 00	18 00

Packed one-third Dozen in a box.

RIP, HAND AND PANEL SAWS.

HENRY DISSTON & SONS.

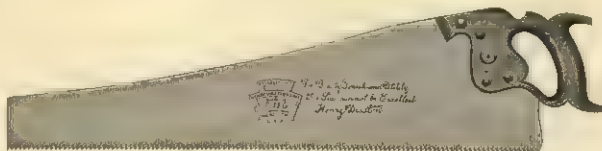


No. D8, RIP SAW.

DISSTON & SONS' SKEW-BACK SAW, APPLE HANDLE, POLISHED EDGE, FIVE IMPROVED SCREWS,
RIP SAWS WITH GRADUATED TEETH.

No. D8—Disston's Rip Saw, Length 28 inches, 4 to 6 Points, ... Per Doz., \$35 00

Packed one-third Dozen in a box.



No. D8, HAND SAW.

No. D8—Disston's Hand Saw, Length 26 inches, 6 to 12 Points, ... Per Doz., \$32 00

Packed one-third Dozen in a box.



No. D8, PANEL SAW.

No. D8—Disston's Panel Saw,	{	Size, inches,	18	20	22
		Per Dozen,	\$16.00	17.50	19.50

Packed one-third Dozen in a box.

The Disston D8 saws combine the popular "Skew Back," the peculiar shaped butt or heel, which with the new screws makes it almost impossible to work loose from the handle, and gives the full sweep of the Saw without the possibility of catching in the work.

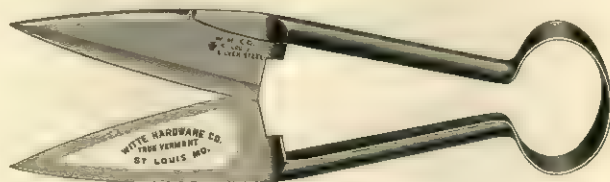
SHEEP SHEARS.



No. 56, W. H. CO.

FULL POLISHED BLADE AND ETCHED, TROWEL SHANK.

No. 56—W. H. Co., Solid Steel, Trowel Shank, Assorted Sizes $4\frac{1}{2}$ to $5\frac{1}{2}$ inches, ... Per Dozen, \$21 00
Packed One-half Dozen in a box.



No. 55, W. H. CO.

FULL POLISHED BLADE AND ETCHED, SWAGED.

No. 55—W. H. Co., Solid Steel, Assorted Sizes $4\frac{1}{2}$ to $5\frac{1}{2}$ inches, ... Per Dozen, \$15 00
Packed One-half Dozen in a box.



No. 50, W. H. CO.

HALF POLISHED BLADE AND ETCHED, SWAGED.

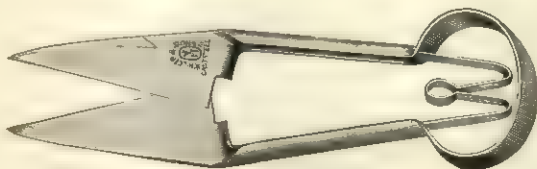
No. 50—W. H. Co., Solid Steel, Assorted Sizes $4\frac{1}{2}$ to $5\frac{1}{2}$ inches, ... Per Dozen, \$13 00
Packed One-half Dozen in a box.

SHEEP SHEARS.



SINGLE SPRING.

No. 500—Single Spring, Glazed Blade, . . .	{	Sizes, inches, ...	11 x 5	12 x 5½
		Per Dozen, ...	\$7.80	8.40
No. 535—Single Spring, Full Polished and Swaged, . . .	{	Sizes, inches, ...	11 x 5	12 x 5½
		Per Dozen, ...	\$10.60	11.20



DOUBLE SPRING.

No. 500½—Double Spring, Glazed Blade, . . .	{	Sizes, inches, ...	11 x 5	12 x 5½
		Per Dozen, ...	\$8.80	9.40
No. 535½—Double Spring, Full Polished and Swaged, . . .	{	Sizes, inches, ...	11 x 5	12 x 5½
		Per Dozen, ...	\$11.80	12.40

Packed One-half Dozen in a package.

HORSE SHEARS.



No. 04, HORSE OR MULE.

No. 04—Horse or Mule Shears, Half Polished Blade, Swaged, Trowel Shank, ...	Per Dozen, \$12.00
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Packed One-half Dozen in a box.



No. 1090.

No. 1090—Horse, Half Polished, 9-inch Curved
Blades, ... Per Dozen, \$10.00



No. 1087.

No. 1087—Horse, Half Polished, 8-inch Bent Blades,
Per Dozen, \$7.50

Packed One-half Dozen in a package.

HAND POWER HORSE CLIPPERS.



No. 10.

No. 10—Hand Power, 3-inch Vibrating Cutter. All Steel Flexible Shaft, Long Balance Arm, with a 4 1/2-foot Shaft Driven from a 28-inch Ball-bearing Balance-wheel, Ball-bearing Gear Head, Complete with Cutting Handle and One Extra Set of Cutters, . . . Each, \$30 00

Weight Boxed for Shipment 145 Pounds.



No. 15.

No. 15—Hand Power, 3-inch Vibrating Cutter, Geared 3 to 1. All Steel Tempered Flexible Shaft, Riveted Joints, Ball-bearing Cutters, Complete with Cutting Handle and One Extra Set of Cutters, . . . Each, \$20 00

Weight Boxed for Shipment 100 Pounds.

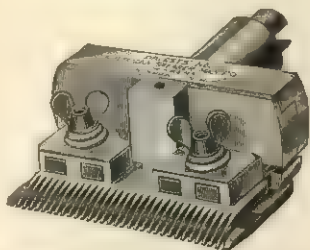
Flexible Shaft Attachment consists of a Gear Head that can be Attached to the end of the Balance Arm, a Quill which supports a Tempered Steel Wire Case enclosing the shaft. The shaft is made up of a series of universal steel joints running freely within the case, the relations being such, however, that it is impossible for it to kink. The Flexible Shaft requires to be greased frequently, especially at the lower end where the sharp bends are apt to come, a fault that can be largely avoided by a little care and practice. All parts entering into the construction of the shaft are made to gauge and of the Best grade of Steel perfectly tempered.

EXTRA PARTS FOR HAND POWER HORSE CLIPPERS.

Extra Shafts, ...	Each, \$5 00
Cases, ...	Each, 3 25
Re-covering Cases, ...	Each, 75
Hooks, ...	Each, 40

Links, ...	Each, \$0 04
Intermediate Pieces, ...	Each, 05
Rivets, ...	Per Dozen, 05
Extra Steel Balls, ...	Each, 01

EXTRA HANDLES AND CUTTERS FOR POWER CLIPPERS.



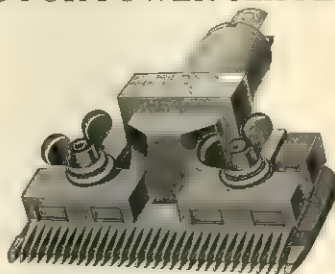
No. 10 H—Vibrating Handles, For No. 10 Power Horse Clippers, Complete with Two 3-inch Cutters, ... Each, \$15 00

Complete with Two 4-inch Cutters, ... Each, 10 00

No. 10 C—Vibrating Cutters, 3 4
For No. 10 Power Horse Clippers, { Per Set, \$3.00 4.00

No. 10 T—Top Plate Only, ... 1.00 1.50

No. 10 B—Bottom Plate Only, ... 1.50 2.25



No. 15 H—Vibrating Handles, For No. 15 Power Horse Clippers, Complete with Two 3-inch Cutters, ... Ea h, \$8 00

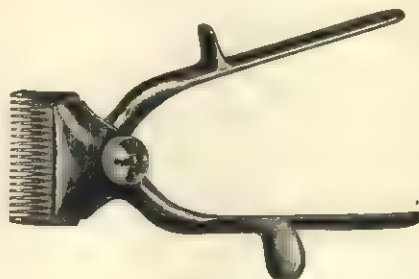
Complete with Two 4-inch Cutters, ... Each, 7 00

No. 15 C—Vibrating Cutters, 3 4
For No. 15 Power Horse Clippers, { Per Set, \$3 00 4 00

No. 15 T—Top Plate Only, ... 1 00 1 50

No. 15 B—Bottom Plate Only, ... 1 50 2 25

HAIR CLIPPERS.



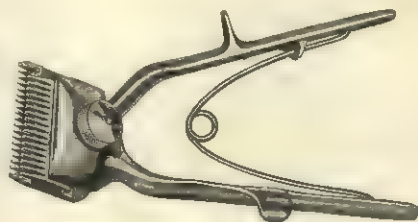
WIDE-AWAKE.

Wide-Awake—Nickel Plated, Cuts $\frac{1}{8}$ inch, ...	Each, \$1 50
Top Plate, For Above, ...	Each, \$0 75
Bottom Plate, For Above, ...	Each, 85
Attachable Comb, For Above, ...	Each, 40
Springs, For Above, ...	Per Dozen, 1 50



COLUMBIAN.

Columbian—Nickel Plated, Cuts $\frac{1}{8}$ inch, ...	Each, \$2 00
Top Plate, For Above, ...	Each, 1 00
Bottom Plate, For Above, ...	Each, 1 10
Attachable Comb, For Above, ...	Each, 40
Springs, For Above, ...	Per Dozen, 1 50



CADET.

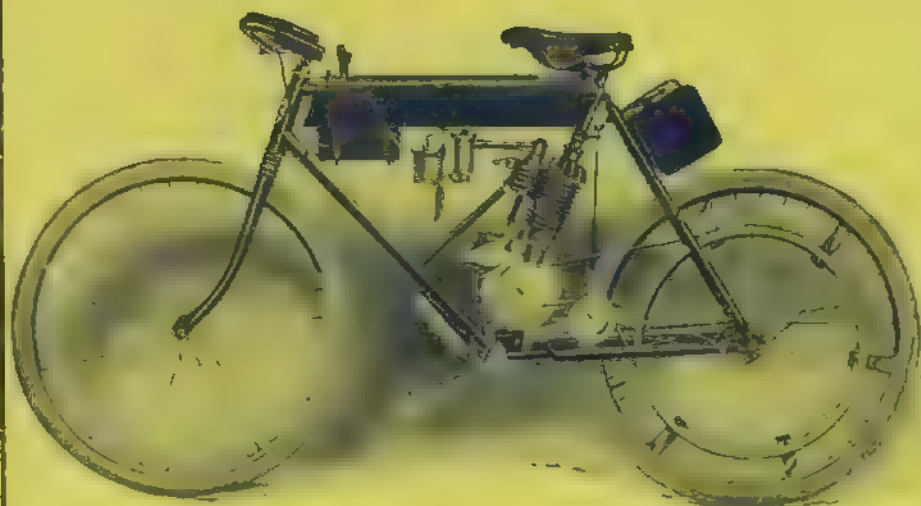
Cadet—Nickel Plated, ...	Each, \$1 75
Top Plate, For Above, ...	Each, 1 00
Bottom Plate, For Above, ...	Each, 1 10
Springs, For Above, ...	Per Dozen, 3 00

ATTACHABLE COMBS.



ATTACHABLE COMB.

Attachable Combs, For Toilet Clippers, ...	Each, \$0 40
--	--------------



MARSH MOTOR CYCLE

1902 Model

Price, \$175

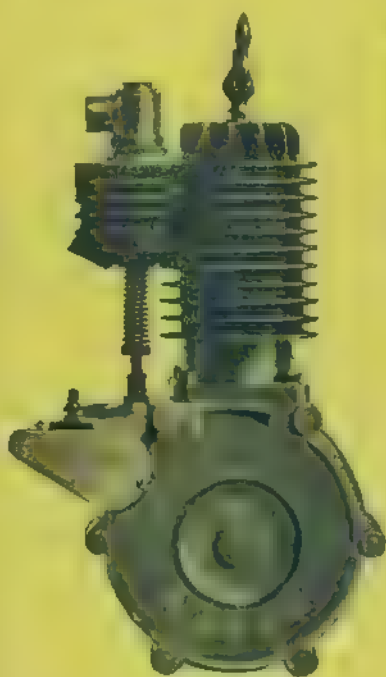
OUR guarantee is the strongest ever given by any manufacturer (see next page). **WE KNOW** that our Motor Cycles are all right. Simplicity and Perfection are what you buy when you purchase a "Marsh." If you want our catalog, write for it. If you wish an agency, apply for it. Better be quick.

MOTOR CYCLE MFG. CO.

BROCKTON, MASS.

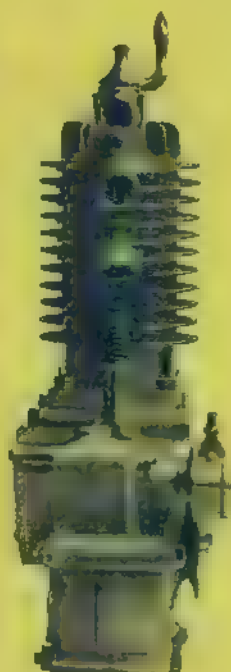


SIDE VIEW



SIDE VIEW

Every part of our motors is built to give satisfaction, and they do it. That is why we guarantee them so liberally.



FRONT VIEW

Its features are crank-disk and shaft one piece, extra long bearings that will last, exhaust valve mechanism entirely within the base, where it is oiled perfectly and kept clean from all dust. It also has many other points. You may know them by writing us.

Our Carburetor is of the float-feed type, which has proved to be the only Carburetor which has given perfect satisfaction.

Get our catalog without delay.

Motor Cycle Mfg. Co.

BROCKTON, MASS.

Our Guarantee

Which covers Motor Cycle, Motor and Apparatus

We guarantee our Motor Cycle to carry the rider a mile in two minutes or better, and that it will carry a rider weighing 175 pounds at a ten per cent grade at the rate of 20 miles per hour. And we hereby agree with the purchaser that in the event of the Motor Cycle failing to perform either of the above named achievements, we will replace it with another or refund the money.

THE MOTOR.—We guarantee the Motor to work perfectly at all times, provided that it is kept oiled as per our instructions and to develop 13½ actual brake horse power. We guarantee it to do this whether attached to our motor cycle, or bought separately, and if it fails to do as above said we agree to refund the money to the purchaser. We further agree to replace any part that becomes broken in ordinary usage (collisions excepted), or that wears out through continuous hard service.

CARBURETOR.—We guarantee our carburetor to supply to the engine at all times a mixture that will give the maximum amount of power that it is possible to be derived from a given size of engine. That it can be adjusted to meet a range of gasoline whose specific gravity ranges from 68 to 80 degrees. That it will not be affected by heat or cold. That it will not flood the engine with gasoline. This part of the guarantee applies to the Carburetor whether attached to our motor or bought separately.

SPARK COIL.—We guarantee the Coil to work perfectly at all times, provided that it is connected with the necessary battery power, i. e., four cells of six amperes at 11½ volts per cell, and that if it fails to do so we will replace it with another.

THE IGNITION PLUG.—We guarantee our new and improved Ignition Plug to work perfectly at all times, provided that it is kept clean, and will replace it if it becomes broken or fails to work at any time.

THE BELT.—We guarantee the Belt to transmit the power from the engine to the rear wheel with out any appreciable slippage, and the same to withstand all strain that it is subjected to while performing the service required of it, and if at any time it should become worn out or fail to transmit the power we will replace it with a new one.

The above guarantee is in force for the calendar year of 1902.

MOTOR CYCLE MFG. CO.

BROCKTON, MASS.

OUR special double-thick flat leather Belt with metallic stitching is the only form of transmission that can be guaranteed for a year. And to know this we did not wait for the other fellow to experiment, but we found it out through our persistency to know what is best. We have used the chain and also the leather stitching. Every man has his opportunity to get rich. Don't let this opportunity slip you, but get the agency for the

MARSH at once.

One thing may be readily comprehended that when a manufacturer guarantees his goods as liberally as we do ours, he certainly must know what he is making. Our Motor Cycle is the only one on the market that is properly guaranteed, and it is also the only one that can be guaranteed, owing to its correct design, its rigid construction, the extra long bearings of the motor, the metallic-stitched double-thick flat leather belt, and the absolute obliteration of all experimental features.

The dealer can feel that after he sells the

MARSH

he will not be in hot water from complaints. If the manufacturer cannot guarantee his goods, how can he expect his agent to sell them?

Now is the time for those dealers who have been shaky in the motor cycle to get right into the game and order a sample

MARSH at once.

We furnish a written guarantee, duly witnessed, and signed by the Treasurer of the Company.

Don't forget that the

MARSH

is a thoroughly-tested and reliable motor cycle and that there are barrels of money in it for the agent.

MOTOR CYCLE MFG. CO.

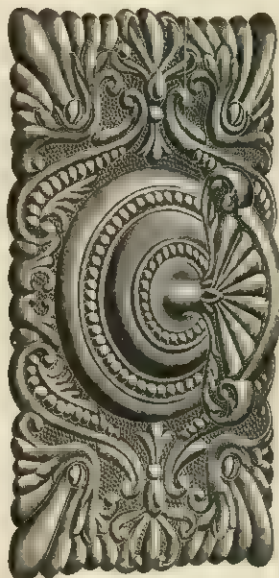
BROCKTON, MASS.

DOOR BELLS.

NEW DEPARTURE, ROTARY DOOR BELLS.

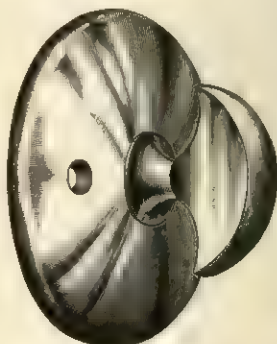
ELECTRICAL RESULTS WITHOUT A BATTERY.

ILLUSTRATION, FULL SIZE.



Turn Plate No. 6, for Nos. 691 to 601 OC.

ILLUSTRATION, FULL SIZE.

Turn Plate No. 7,
for Nos. 791 to 701 OC.

ILLUSTRATION, TWO-THIRD SIZE.



Gong for Nos. 691 to 701 OC.

No. 691 —Rotary Door Bell, Nickel-Plated Bell Metal Gong, 3 inches Diameter, Real Bronze Turn Plate No. 6, Light Bronze (Natural Color) Finish, ...	Per Doz.,	\$17 50
No. 691 —Rotary Door Bell, Nickel-Plated Bell Metal Gong, 3½ inches Diameter, Real Bronze Turn Plate No. 6, Light Bronze (Natural Color) Finish, ...	Per Doz.,	\$20 50
No. 691 OC —Same as No. 691, but in Old Copper Finish, ...	Per Doz.,	\$17 50
No. 601 OC —Same as No. 601, but in Old Copper Finish, ...	Per Doz.,	\$20 50
No. 791 —Rotary Door Bell, Nickel-Plated Bell Metal Gong, 3 inches Diameter, Real Bronze Turn Plate No. 7, Light Bronze (Natural Color) Finish, ...	Per Doz.,	\$17 50
No. 701 —Same as No. 790, except with 3½ inch Gong, ...	Per Doz.,	\$20 50
No. 791 OC —Same as No. 791, but in Old Copper Finish, ...	Per Doz.,	\$17 50
No. 701 OC —Same as No. 701, but in Old Copper Finish, ...	Per Doz.,	\$20 50

Packed one Set in a box, complete with screws.

DOOR BELLS.

ILLUSTRATION, FULL SIZE.



Turn Plate for No. 01472F.

NEW DEPARTURE, ROTARY BELLS.

ILLUSTRATION,
Two-THIRD SIZE.



Gong for No. 01472F.

No. 01472F—Rotary Door Bell, Old Copper Ornamental Iron Gong, 3 inches Diameter, Old Copper Ornamental Iron Turn Plate, ... Per Doz., \$14 00

ILLUSTRATION, FULL SIZE.



Button Case for No. 01452F.

NEW DEPARTURE, PUSH BUTTON DOOR BELLS.

ILLUSTRATION,
Two-THIRD SIZE.



Gong for No. 01452F.

No. 01452F—Push-Button Door Bell, Old Copper Ornamental Iron Gong, 3 1/4 inches Diameter, Old Copper Ornamental Iron Button Case, ... Per Doz., \$18 00

Gives continuous electrical stroke, while button is pressed.

Bell is rewound by turning the Gong.

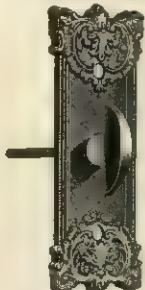
Packed One in a box, complete with screws.

TURN DOOR BELLS.

Illustrations Half Size.



Gong for Nos. 7145 and 07120.



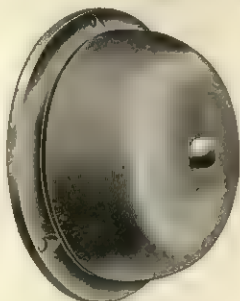
No. 7145, Turn Handle.



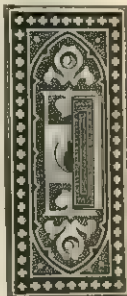
No. 07120 Turn Handle.

- No. 7145 Brunswick Design, Cast Metal Turn Handles** $4\frac{1}{2} \times 1\frac{1}{2}$ inches, Bronze Plated, Antique Copper Finish, Nickel Plated 3-inch Gong, Bronze Plated Antique Copper Base, ... Per Dozen, \$17 75
- No. 07120—Wrought Metal Turn Handles** $3\frac{1}{2} \times 1\frac{1}{2}$ inches, Bronze Plated, **No. 11 Finish**, Nickel Plated 3-inch Gong, Bronze Plated Antique Copper Base, ... Per Dozen, 17 75

Packed One-twelfth Dozen in a box, with Screws.



Gong for No. 153.



No. 153, Turn Handle.

- No. 153—Century Design, Real Bronze Wrought Metal Turn Handles** $4\frac{1}{2} \times 2\frac{1}{2}$ inches, **No. 3 Finish**, Nickel Plated 4-inch Gong, ... Per Dozen, \$31 00

Packed One-twelfth Dozen in a box, with Screws.



Gong for No. 135.



No. 135, Turn Handle.

- No. 135—Walsingham Design, Cast Metal Real Bronze Turn Handles** $4\frac{1}{2} \times 1\frac{1}{2}$ inches, **No. 27 Finish**, $3\frac{1}{2}$ -inch Nickel Plated Gong, ... Per Dozen, \$26 00

Packed One-twelfth Dozen in a box, with Screws.

DOOR BELLS.



Gong for Bell No. 3241.

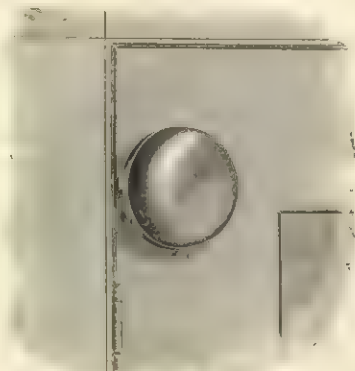


Plate for Bell No. 3241.

TURN HANDLE DOOR BELL.

No. 3241 Old Copper Finish No. 7½. Wrought Metal, Bronze Turn Handles and Plates 3½ x 13½ inches, Nickel Steel Gong 8 inches, Rotary Action, ... Per Dozen, \$12 00
Packed One-twelfth Dozen in a box.

AUTOMATIC ALARM BELLS.



Cut Shows Bell in Position.



Half Size Cut.

AUTOMATIC ALARM BELL.

CAN BE APPLIED TO ANY DOOR OR WIDE SASH. ESPECIALLY VALUABLE AS A BURGLAR ALARM.

Automatic Alarm Bells - Electric Alarm, Bell Metal Gongs, ... Per Dozen, \$9 00
Packed One-twelfth Dozen in a box

The Act of Closing the Door sets the Operating Mechanism, so that the instant the Door is Opened the Alarm is Sounded The Bell may be Rendered Silent, when desired, by the Stop Mechanism.

BOX COFFEE MILLS.



No. 431.

No. 431—Parker's National, Medium Size,
Dimensions $4\frac{1}{2} \times 5$ inches, Hardwood
Box, Varnished, Castings Bronzed, with
Handle, . . . Per Dozen, \$18 00

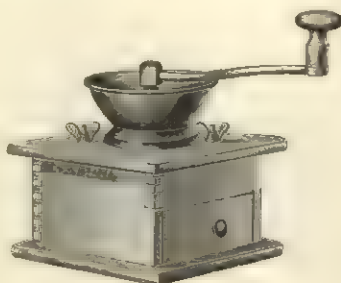
Packed One-half Dozen in a box, Weight 30 Pounds.



Nos. 432 AND 435

No. 432—Parker's National, Large Size,
Dimensions $4\frac{1}{2} \times 5\frac{1}{2}$ inches, Hardwood
Box, Varnished, Castings Bronzed, with
Handle, . . . Per Dozen, \$14 00

**No. 435—Parker's National, Extra Large
Size, Double Grinders,** Dimensions
 $5 \times 5\frac{1}{2}$ inches, Castings Bronzed,
Per Dozen, 15 00



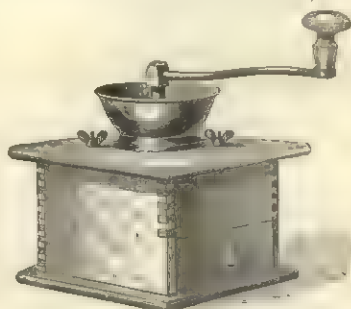
Nos. 102 TO 108.

**No. 102—Parker's Eagle, Iron Hopper, Hard-
wood Box, Varnished, Japanned,**
Per Dozen, \$ 9 80

**No. 104—Parker's Eagle, Iron Hopper, Hard-
wood Box, Varnished, Dimensions $8\frac{1}{2} \times$
5 inches, Japanned, . . . Per Dozen, \$ 5 00**

**No. 108—Parker's Eagle, Britannia Hopper,
Hardwood Box, Varnished, . . . Per Dozen, 11 00**

Packed One-half Dozen in a case, Average Weight 25 Pounds.



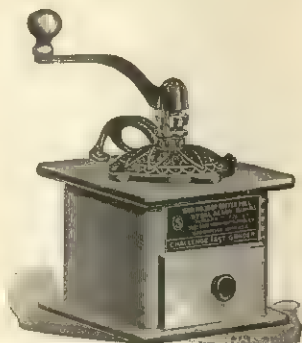
Nos. 25 AND 35.

**No. 25 —Parker's Union, Iron Hopper, Double
Grinders, Hardwood Box, Varnished,
Dimensions $4\frac{1}{2} \times 6$ inches, Japanned,
Per Dozen, \$ 5 00**

**No. 35—Parker's Union, Britannia Hopper,
Double Grinders, Hardwood Box,
Varnished, Dimensions $4\frac{1}{2} \times 6$ inches,
Per Dozen, 17 50**

Packed One-half Dozen in a box, Average Weight 35 Pounds.

BOX COFFEE MILLS.



No. 1087



No. 1085.

FAST GRINDER. HARDWOOD VARNISHED BOX, CASTINGS FINELY BRONZED, SWINGING COVER, WITH GRASPING HANDLE.
LARGE, DEEP SUNKEN TIN HOPPER, ROUNDED TIN SIDE DRAWER.

No. 1087—Dimensions $6\frac{1}{2}$ inches Deep, 6 inches Wide,
5 inches High, . . . Per Dozen, \$8 00

No. 1085—Dimensions 7 inches Deep, $6\frac{1}{2}$ inches Wide,
 $5\frac{1}{4}$ inches High, . . . Per Dozen, \$10 00

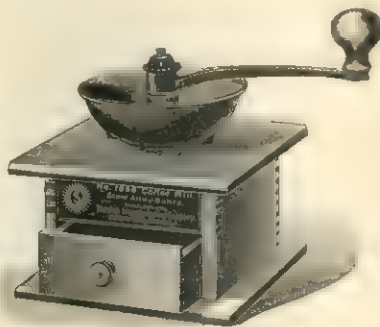
Packed One-half Dozen in a box, Average Weight 25 Pounds.



No. 1080.

No. 1080 - One Pound Mill, Dimensions $6\frac{1}{2}$ inches
Deep, $6\frac{1}{2}$ inches Wide, $7\frac{1}{2}$ inches High.
Air Tight, Steel Buhr, Wood Bottom
Drawer, Rounded Tin Side, Hardwood
Varnished, Castings Finely Bronzed,
Per Dozen, \$9 00

Packed One-half Dozen in a box, Weight 30 Pounds.

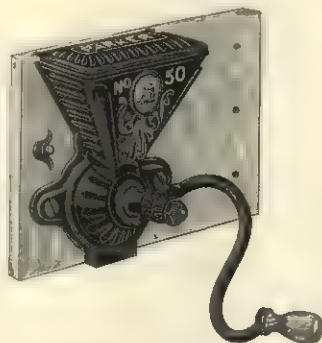


No. 1088

No. 1088 Dimensions 6 inches Deep, 6 inches
Wide, $8\frac{3}{4}$ inches High, Varnished, Raised
Iron Hopper, Wood Drawer, Castings Black
Japanned, . . . Per Dozen, \$5 00

Packed One-half Dozen in a box, Weight 15 Pounds.

SIDE COFFEE MILLS.



PARKER'S EAGLE SIDE MILL.

HARDWOOD BACK, OIL FINISHED, JAPANNED TIN HOPPER, STEEL GRINDERS.

No.	50	60	70	80	90
Weight Per Case, pounds,	24	25	34	40	50
Size of Hopper, inches,	$4\frac{3}{4} \times 2 \times 3\frac{3}{4}$	$5 \times 2\frac{1}{2} \times 4$	$6\frac{1}{2} \times 2\frac{3}{4} \times 4\frac{1}{4}$	$7\frac{1}{2} \times 2\frac{3}{4} \times 5\frac{1}{2}$	$8\frac{1}{2} \times 3 \times 7$
Size of Frame, inches,	6×8	7×9	7×10	9×12	11×15
Per Dozen,	\$7 50	8.50	10.00	16.00	26 00

Packed One-half Dozen in a box.

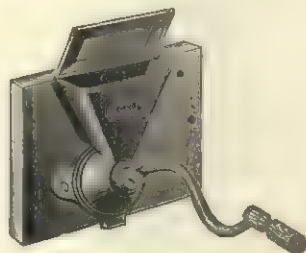


X-RAY.

X-Ray—One Pound, Wall Mill, Hardwood, Var-
nished Frame and Hopper, with Glass
Front, so Coffee is always in sight,

Per Dozen, \$13 00

Packed One-half Dozen in a case, Weight 27 Pounds.



No 135

No. 135 Old Wilson Improved, Hardwood Back,
Oil Finished, Japanned Tin Hopper, Steel
Grinders, Size of Hopper $3\frac{3}{4} \times 1\frac{3}{4} \times 3\frac{1}{2}$
inches, ... Per Dozen \$6 00

Packed One Dozen in a box, Weight 18 Pounds.

BOX COFFEE MILLS.



NONE SUCH.

None Such—Sheet Metal, Finely Lithographed,
One-pound Mill, Dimensions 7 inches High,
5 inches Square, ... Per Dozen, \$8 00

One in a carton, One-half Dozen in a box, Weight 16 Pounds.



No. 541.

No. 541 Parker's Victor Rapid Grinder,
Hardwood Varnished, Dimensions 8 inches
High, 5½ inches Square, Iron Top and
Handle, Bronzed, ... Per Dozen, \$15 00

One-half Dozen in a box, Weight 30 Pounds

SIDE COFFEE MILLS.



No. 077.

No. 077—Royal, with Canister, Embossed Sheet
Metal, holds one pound, Cast Iron, Black
Enamel. Per Dozen, \$12 00

One-half Dozen in a case, Weight 30 Pounds.



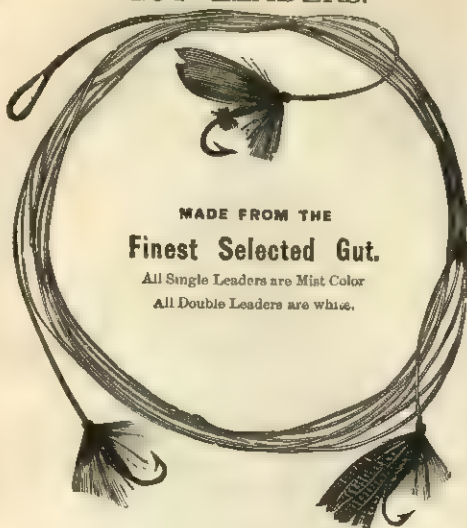
No. 77.

No. 77—Royal, Iron Hopper, Size 4 inches Diam-
eter, 3 inches Deep, Black Enamel Finished,
can be easily taken apart to clean, Per Dozen, \$7 00

One-half Dozen in a case, Weight 44 Pounds.

GUT LEADERS.

SILK WORM GUT.



MADE FROM THE
Finest Selected Gut.

All Single Leaders are Mist Color

All Double Leaders are white.



Cut Showing 10,000 Strands.

SPANISH SILK WORM GUT, FIRST QUALITY.

No. 40—Single Gut Leaders, Trout, 3 feet, Per Dozen, \$0 50
No. 43—Single Gut Leaders, Bass, 3 feet, " 1 00

Packed One Dozen in a package.

Length, inches. 9 12
No. 60—Trout Size, Per 100 Strands, \$0.40 \$0.80
No. 61—Bass Size, " " .80 .90

Packed 100 Strands in a bundle, 100 Bundles in a package.

GUT LEADERS.

Fine Quality Gut Casting Line.

GRADE 6 A



MIST COLOR.

2 YARD.

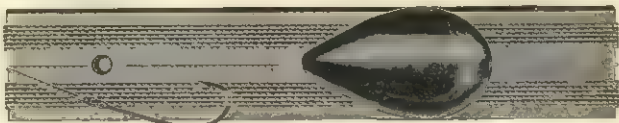
2 PLY.

Per Dozen.
No. 41—Double Gut Leaders, Trout, 3 feet, \$0 80
No. 44—Double Gut Leaders, Bass, 3 feet, 2 00
No. 46—Double Gut Leaders, Trout, 6 feet, 1 40

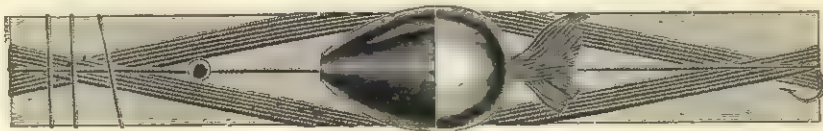
Per Dozen.
No. 47—Double Gut Leaders, Bass, 6 feet, \$ 4 00
No. 48—Treble Twist, Bass, 3 feet, 5 00
No. 49—Treble Twist, Bass, 6 feet, 10 00

Packed One Dozen in a package.

FURNISHED LINES.



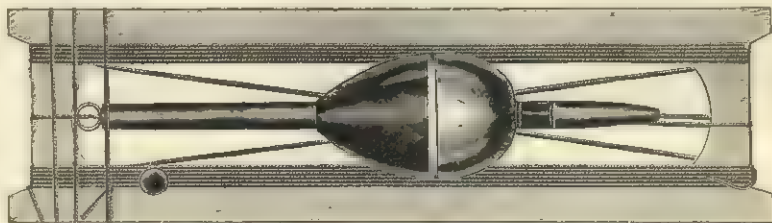
No. 150—White Cotton Lines, 12 feet, Egg Wood Float, Stained, ... Per Dozen, \$0 20
Packed Three Dozen in a box.



No. 151—Cotton Lines, 12 feet, Feathered Wood Float Painted and Varnished, ... Per Dozen, \$0 40
Packed Three Dozen in a box.

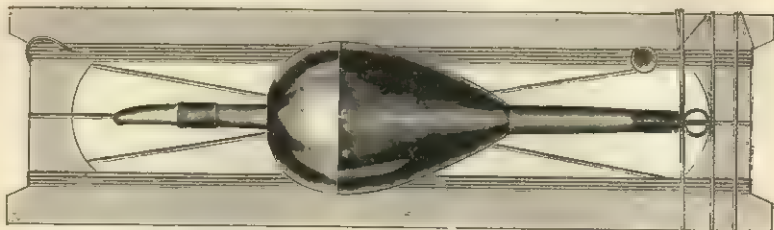


No. 152—Drab Cotton Lines, 15 feet, 1 3/4 inch Egg Wood Float, Painted in Two Colors and Varnished, with Patent Per Dozen, \$0 60
Spiral Attachment, ... Packed Two Dozen in a box.

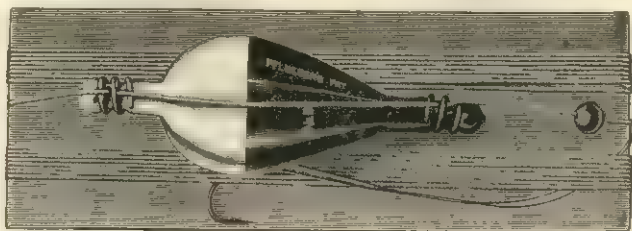


No. 153—Drab Lines, 12 feet, Wood Float with Stick Top, Painted in Two Colors and Varnished, Wood Winder, ... Per Dozen, \$0 80
Packed Three Dozen in a box.

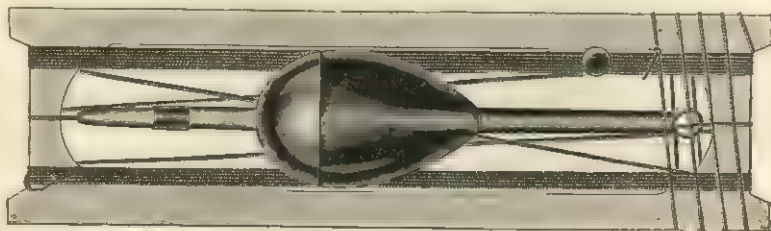
FURNISHED LINES.



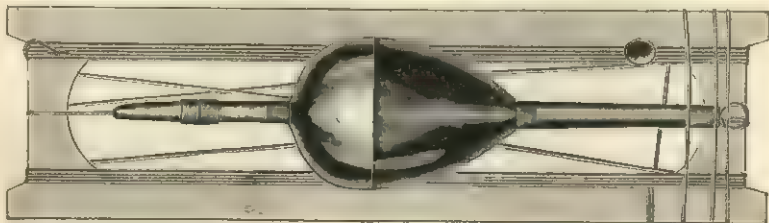
No. 154 Eureka Lines, 12 feet, 1 linen Finish, 1 $\frac{3}{4}$ inch, Two-Colored, Quill Top, Wood Float, Finely Varnished, Split Shot Sinker, Metal Winder, ... Per Dozen, \$1 20



No. 155—Sea Island Cotton Lines, 15 feet, Patent Adjustable Coil Spring, Egg-Shaped Enamelled Float, Sprout Hook to Double Gut, Fancy Winder, ... Per Dozen, \$1 50



No. 156 Linen Lines, 12 feet, 2 $\frac{1}{2}$ inch Unbound Barrel and 1 $\frac{3}{4}$ inch Unbound Cork Floats, assorted, Painted and Varnished, Wood Winder, ... Per Dozen, \$1 80



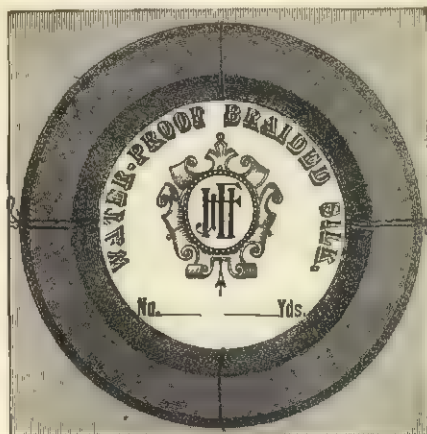
No. 157 Twisted Silk Lines, 12 feet, 2 $\frac{1}{4}$ inch Bound Barrel and 1 $\frac{3}{4}$ inch Bound Egg Floats, assorted, Wood Winder, ... Packed One Dozen in a box. Per Dozen, \$2 40

BRAIDED LINES.

F _____

Futs showing size of Braided Lines.

E _____



_____ D

Outs show up size of Braided Line.

_____ C

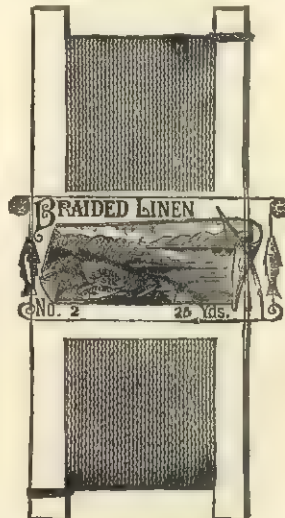
WATERPROOF BRAIDED OILED SILK

Braided Oiled Silk Lines, in Coils of 100 Yards, (Nos. F, E, D and C)
Per 100 Yards, F \$2.00 E 2.40 D 2.70 C 3.20
Packed 500 Yards in a box.



BRAIDED LISLE THREAD.

ON 25 YARD BLOCKS, 4 CONNECTED.
Nos. F, E, D and C,
Per 100 Yards, \$0 80



BRAIDED LINEN.

ON 25 YARD BLOCKS, 4 CONNECTED.
Nos. F, E, D and C,
Per 100 Yards, \$0 90
Packed 500 Yards in a box.



BRAIDED SILK.

ON 25 YARD BLOCKS, 4 CONNECTED.
Nos. F E D C
Per 100 Yards, \$1.80 2.00 2.50 3.00

STEEL SLEIGHS.

THESE SLEIGHS ARE HAND DECORATED, RUNNING GEARS ENAMELED AND STRIPED. GOOSE NECKS AND FANCY SCROLLS, ARE MALLEABLE TINNED IRON. ROUND BACK-ANGLE STEEL RUNNERS.



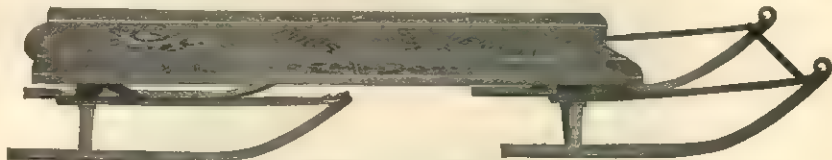
- No. 0—Two Knees,** Length 28 inches, Height 7 inches, Width 10 $\frac{1}{4}$ inches, ... Per Dozen, \$14 00
 Weight Per Dozen 75 Pounds.
No. 10—Two Knees, Length 31 inches, Height 7 $\frac{1}{2}$ inches, Width 12 inches, ... Per Dozen, 18 00
 Weight Per Dozen 85 Pounds.
No. 20—Two Knees, Length 33 inches, Height 7 $\frac{3}{4}$ inches, Width 12 inches, ... Per Dozen, 21 00
 Weight Per Dozen 90 Pounds



- No. 110—Two Knees,** Length 30 inches, Height 8 inches, Width 12 inches, ... Per Dozen, \$24 00
 Weight Per Dozen 90 Pounds.



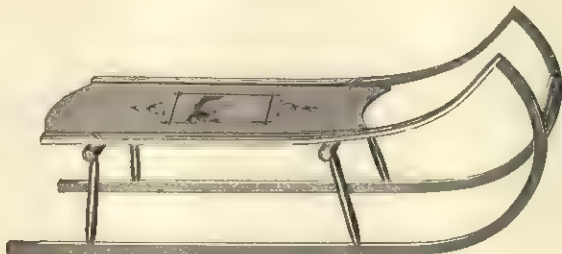
- No. 2—Two Knees,** Length 37 inches, Height 4 $\frac{1}{2}$ inches, Width 11 $\frac{1}{4}$ inches, ... Per Dozen, \$21 00
 Weight Per Dozen 85 Pounds.



AMERICAN BOY BOB SLEIGH.

- No. 202—American Boy,** Length 44 inches, Width 11 inches, Forward and Rear Bobs are Oscillating, Runs Smoothly Per Dozen, \$38 00
 over Uneven Ground, ...
 Weight Per Dozen 140 Pounds.

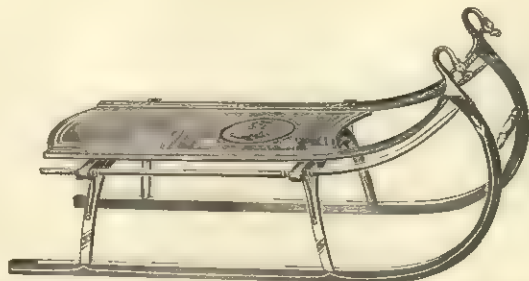
WOOD SLEIGHS.



No. 50/A—Straight Knee, Size 12x33 inches, Varnished and Ornamented, Flat Shoes, ... Per Dozen, \$4 00
Weight Per Dozen 38 Pounds.

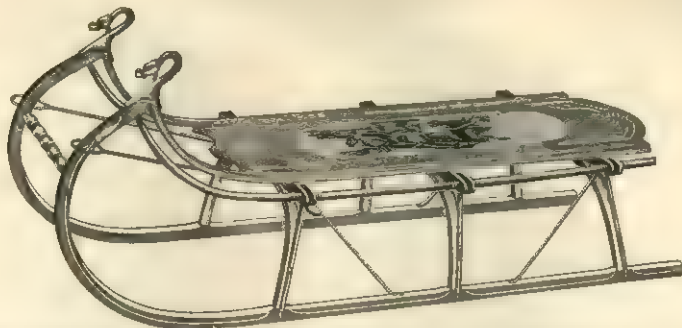


No. 37 1/2 Size 12x33 inches, Varnished on Wood, Neatly Painted Top, Two Bent Knees with Braces, Oval Shoes and Dragon Heads, ... Per Dozen, \$12 00
Weight Per Dozen 66 Pounds.



No. 53—Size 15x33 inches, Varnished and Stenciled, Top Board Painted and Ornamented in Brilliant Colors, Round Side Fenders, Two Knees with Iron Braces, Dragon Heads, Half Round Shoes, ... Per Dozen, \$16 00
Weight Per Dozen 72 Pounds.

WOOD SLEIGHS.



- No. 60**—Size 16x41 inches, Painted and Striped Throughout, Ornamented Top Board, Three Knees, Plated Draw Heads, Cross Braces and Dragon Heads, Round Side Fenders, Half Round Shoes, ... Per Dozen, \$30 00
Weight Per Dozen 86 Pounds.

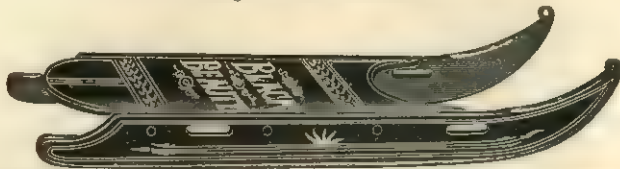
WOOD CLIPPERS.



- No. 10**—Size 11x37 inches, Varnished, Painted and Ornamented Top Board, Flat Shoes, ... Per Dozen, \$ 5 00
Weight Per Dozen 75 Pounds.
- No. 12**—Size 11x37 inches, Varnished, Painted and Ornamented Top Board, Full Round Spring Runners, ... Per Dozen, 9 00
Weight Per Dozen 80 Pounds.
- No. 15** Size 11x43 inches, Varnished, Painted and Ornamented Top Board, Full Round Spring Runners, ... Per Dozen, 14 00
Weight Per Dozen 95 Pounds.

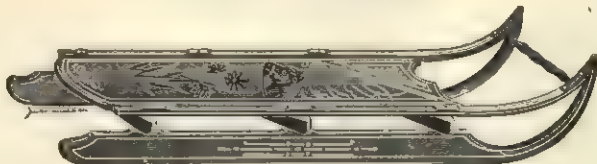


- No. 115**—Size 14x42 inches, Varnished on Wood, Painted and Ornamented Top, Hand Turned Side Handles Securely Fastened by Plated Malleable Iron Braces, Full Round Spring Shoes, ... Per Dozen, \$22 00
Weight Per Dozen 136 Pounds.



- No. 120** Size 13x47 inches, Handsomely Painted in Black and Elaborately Decorated in Gold, Three Beams, Full Round Spring Shoes, ... Per Dozen, \$42 00
Weight Per Dozen 170 Pounds.

WOOD CLIPPERS.



No. 110—Size 13x47 inches, Assorted Tops, Hardwood and Painted, Three Beams, Full Spring Shoes, . . . Per Dozen, \$28 00
Weight Per Dozen 120 Pounds.

PUSH SLEIGHS.



No. 3—Push Sleigh, Nicely Painted and Ornamented Throughout, Large Deep Body and Seat, Push Handle, Round Side Fenders, Brightly Plated Braces, Half Round Shoes, Weight 25 lbs., . . . Each, \$5 00
No. 5—Push Sleigh, Upholstered in Plush, Nicely Painted and Ornamented Throughout, Large Deep Body and Seat, Push Handle, Round Side Fenders, Brightly Plated Braces, Half Round Shoes, Weight 25 lbs., . . . Each, \$ 50
Packed One in a crate.

BOYS' BARROWS.



BOYS' IRON GARDEN BARROW.

Nos.	6	7	8	9
Size of Box, inches, ...	10 1/2	13	15	16 1/2
Size of Wheel, inches, ...	6	8	9	10
Length of Handle, inches, ...	24	30	35	40
Weight Per Dozen, pounds, ...	30	64	80	92
Per Dozen, ...	\$9.50	10.50	11.50	12 50

Packed One-half Dozen in a crate.

SCREW DRIVERS.



W. H. CO. "IXL."

CRUCIBLE STEEL, ROUND BLUED BLADE, RIVETED TANG. WROUGHT STEEL TAPER FERRULE NICKEL PLATED
POLISHED HARDWOOD HANDLE, ROSEWOOD FINISH.

W. H. Co. "IXL,"	{ Inches,	3	4	5	6	7	8	10
	{ Per Doz.,	\$3.25	3.45	3.65	4.15	4.50	5.00	5.65

One-Half Dozen in a box.



No. 4.

CAST STEEL, ROUND BLADE, NICKEL PLATED FERRULE, BLACK ENAMELED HANDLE

No. 4—W. H. Co.	{ Inches,	3	4	5	6	7	8
	{ Per Doz.,	\$2.00	2.50	3.00	3.50	4.00	5.00

One-Half Dozen in a box.



No. 1.

CAST STEEL, FLAT BLADE, BRASS FERRULE, BEECH HANDLE

No. 1—W. H. Co.	{ Inches,	2	3	4	5	6	7	8	10
	{ Per Doz.,	\$1.50	2.00	2.50	3.00	3.50	4.00	4.50	6.00

One Half Dozen in a box.

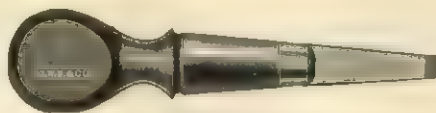


No. 64.

CAST STEEL BLADE PATENT METALLIC FASTENING BRASS FERRULE, VARNISHED HANDLE.

No. 64—Stanley,	{ Inches,	2	3	4	5	6	7	8	10	12
	{ Per Doz.,	\$1.50	2.00	2.50	3.00	3.50	4.00	4.75	6.00	8.00

One-Half Dozen in a box.



Full Size Cut No. 0

No. 0—Sewing Machine, Cast Steel Blade 1½ inch, Brass Ferrule, Beech Handle,
One Gross in a box.

Per Doz. \$9.50

SCREW DRIVERS.

**"YANKEE" No. 10, RATCHET**

FORGED STEEL BLADE, NICKEL PLATED FERRULE, ROUND ROSEWOOD FINISH HANDLE.

No. 10—"Yankee,"	{	Inches,	2	3	4	5	6	8	10
		Per Doz.,	\$6.50	\$8.00	\$9.00	\$10.00	\$11.00	\$13.00	\$16.00

One-Half Dozen in a box.

NOTE—Adjustment of Ratchet: For right hand, or to ratchet a screw in, push slide to end of slot towards bit. For left hand, or to ratchet a screw out, push slide towards handle of driver. When slide is midway, blade is held rigidly, and may be used as an ordinary screw driver with fixed blade.

**"YANKEE" No. 30, SPIRAL.**

FORGED STEEL BLADE, NICKEL PLATED FERRULE, ROUND ROSEWOOD FINISH HANDLE.

No. 30—"Yankee,"	Per Doz.,	\$24.50
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One only in a strong paper box. For Drill Attachments fitting No. 30, see Page 71.

Spiral-Ratchet Screw Driver; right and left hand and rigid, complete with three interchangeable bits. Extreme length of tool with bit in chuck $13\frac{1}{4}$ inches when closed, and $19\frac{1}{4}$ inches when extended.

**GOODELL'S SPIRAL.**

COMPLETE WITH THREE INTERCHANGEABLE BITS. HARDWOOD HANDLE

No. 1—Length, extended, 14 inches,	Per Doz.,	\$21.00
No. 2—Length, extended, 16 inches,	Per Doz.,	24.00
No. 3—Length, extended, 18 inches,	Per Doz.,	27.00

One only in a box.

**GOODELL'S No. 22.**

No. 22—Reversible, automatic, interchangeable.	Two separate and distinct spirals, each with three Screw Drivers	
Per Dozen,		\$30.00

Packed One in a box

SCREW DRIVERS.



No. 2, REID'S LIGHTNING SPIRAL BRACE OR SCREW DRIVER

No. 2 Reid's, Nickel-Plated Cylinder, Rosewood Handle, Lignum Vitæ Head. Length, when closed, 12 inches; when extended, 21 inches. Complete with One Boring and Two Screw Driver Bits, Per Doz., \$24.00.
One-Half Dozen in a box.



No. 1, REID'S LIGHTNING.

No. 1—Reid's, Length, when closed, 15½ inches; when extended, 26½ inches. Complete with one heavy Screw Driver Bit. Per Doz., \$30.00.



GEO. E. GAY'S RATCHET.

CAST STEEL ROUND BLADE, BRASS FERRULE, BLACK ENAMELED HANDLE.

Gay's Ratchet,

Inches,	4	5	6	8	10	12
Per Doz.,	\$9.00	10.20	12.00	13.50	15.00	16.50

One-Half Dozen in a box.



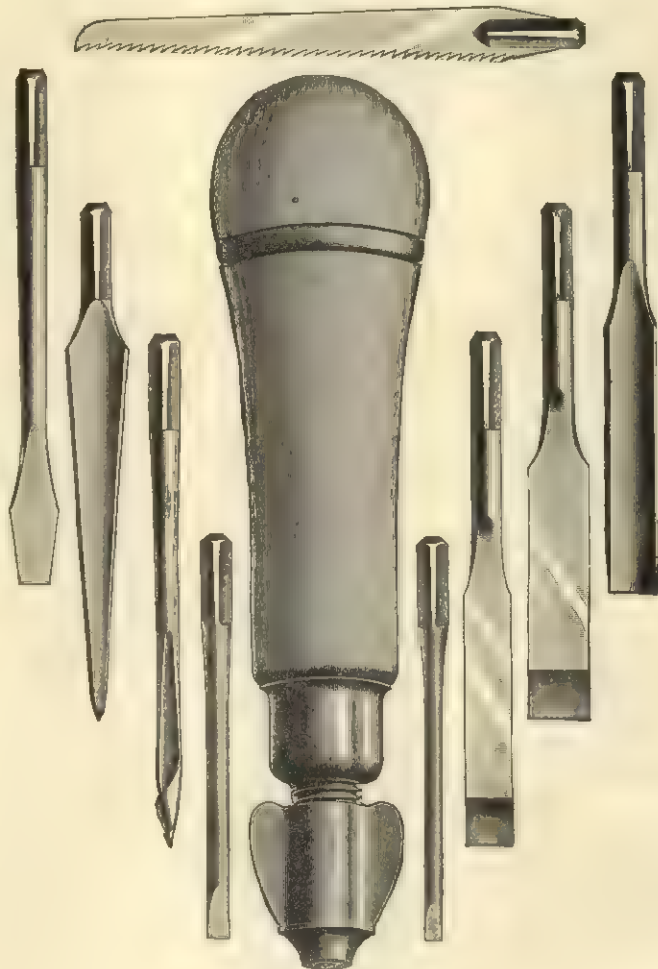
CHAMPION SCREW DRIVER.

FLUTED APPLEWOOD HANDLE, FORGED ROUND BLADE, TEMPERED AND TESTED, EXTRA HEAVY FERRULE.

Champion,

Sizes, Inches,	4	5	6	8	10
Per Doz.,	\$4.25	5.00	6.00	8.00	10.00

AWLS AND TOOLS.



Full Size Cut of No. 2 B

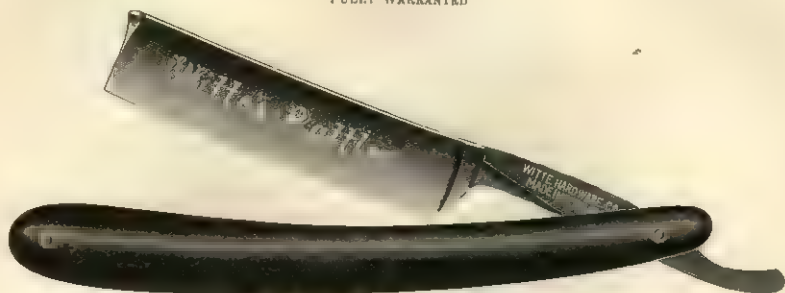
No. 1—Fray's Ten Tools, consisting of Chisel, Tack-Puller, Gouge, Gimlet, Screw Driver, Reamer Scratch Awl, and Four Brad Awls of different sizes. **Cocobolo Wood Handle.** Jaws, Clamping Nut and Ferrule are nickel plated. The shanks of the tools are $\frac{1}{8}$ inch, and are squared largest at threads, to prevent their drawing out of the sockets. Per Doz., \$12 00

No. 2B Fray's Nine Tools, in Cocobolo Handles, Per Doz., 18.00

No. 4—Fray's Ten Tools, same as No. 1, but not as nicely finished, Per Doz., 9.00

One-Half Dozen in a box.

RAZORS. WITTE HARDWARE COMPANY. FULLY WARRANTED



Nos. 310 to 340, WITTE'S RATTLER.

No. 310 - Witte's Rattler, Hollow Ground, $\frac{1}{2}$ -inch Blades, Black Handles,	Per Dozen, \$30 00
No. 320 - Witte's Rattler, Hollow Ground, $\frac{3}{8}$ -inch Blades, Black Handles,	Per Dozen, 20 00
No. 330 - Witte's Rattler, Hollow Ground, $\frac{3}{8}$ -inch Blades, Black Handles,	Per Dozen, 30 00
No. 340 - Witte's Rattler, Hollow Ground, $\frac{3}{8}$ -inch Blades, Black Handles,	Per Dozen, 30 00



Cut Shows No. 920.

Nos. 920 AND 922, WITTE'S CONQUEROR.

No. 920 - Witte's Conqueror, Hollow Ground, $\frac{3}{8}$ -inch Blades, Amber Celluloid Handles,	Per Dozen, \$24 00
No. 922 - Witte's Conqueror, Hollow Ground, $\frac{3}{8}$ -inch Blades, Agate Celluloid Handles,	Per Dozen, 24 00



No. 921, WITTE'S CONQUEROR.

No. 921 - Witte's Conqueror, Hollow Ground, $\frac{3}{8}$ -inch Blades, Bamboo Celluloid Handles, Packed One-half Dozen in a box.	Per Dozen, \$24 00
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RAZORS.

WITTE HARDWARE COMPANY.

FULLY WARRANTED.



No. 720, MATADOR.

No. 720—Matador, Hollow Ground, $\frac{5}{8}$ -inch Blades, Full Crocus Finish, Fancy Celluloid Handles.

Per Dozen. \$28.00



No. 420, WITTE HARDWARE CO.

No. 420—Witte Hardware Co., Hollow Ground, $\frac{5}{8}$ -inch Blades, Full Crocus Finish, Black Handles.

Per Dozen. \$28.00

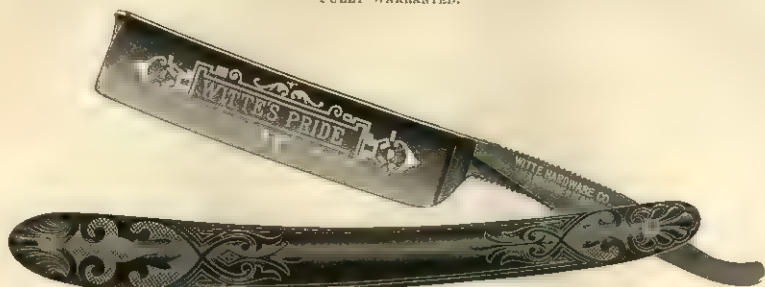


No. 820, OUR DAISY.

No. 820—Our Daisy, Hollow Ground, $\frac{5}{8}$ -inch Blades, Full Crocus Finish, Grained Celluloid Handles, Per Dozen \$30.00

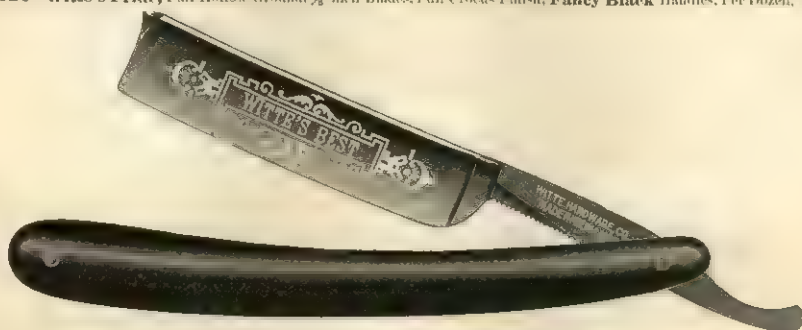
Packed One-half Dozen in a box.

RAZORS. WITTE HARDWARE COMPANY. FULLY WARRANTED.



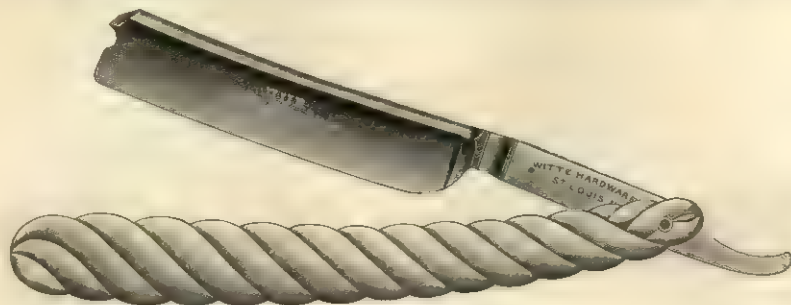
Nos. 610 AND 620, WITTE'S PRIDE.

No. 610—Witte's Pride, Full Hollow Ground, $\frac{3}{8}$ -inch Blades, Full Crocus Finish, **Fancy Black Handles**, Per Dozen, \$30 00
No. 620—Witte's Pride, Full Hollow Ground, $\frac{3}{8}$ -inch Blades, Full Crocus Finish, **Fancy Black Handles**, Per Dozen, 30 00



Nos. 510 to 540, WITTE'S BEST.

No. 510—Witte's Best, Extra Full Hollow Ground, $\frac{3}{8}$ -inch Blades, Full Crocus Finish, **Black Handles**, Per Dozen, \$32 00
No. 520—Witte's Best, Extra Full Hollow Ground, $\frac{3}{8}$ -inch Blades, Full Crocus Finish, **Black Handles**, Per Dozen, 32 00
No. 530—Witte's Best, Extra Full Hollow Ground, $\frac{3}{8}$ -inch Blades, Full Crocus Finish, **Black Handles**, Per Dozen, 32 00
No. 540—Witte's Best, Extra Full Hollow Ground, $\frac{3}{8}$ -inch Blades, Full Crocus Finish, **Black Handles**, Per Dozen, 32 00



No. 1020, OUR BEAUTY.

No. 1020—Our Beauty, Full Hollow Ground, $\frac{3}{8}$ -inch Blades, Full Crocus Finish, **Ivory Tangs, Twisted Ivory Handles**, Per Dozen, \$42 00

Packed One-half Dozen in a box.

RAZORS IN ASSORTMENTS.

WITTE HARDWARE COMPANY.

FULLY WARRANTED.



No. 6, ACORN ASSORTMENT.

No. 6—Acorn Razor Assortment, Contains 6 Acorn Razors, Hollow Ground, Croons Finish, Fancy Celluloid Handles, put up in a Fancy Leatherette Satin Lined Case, Per Case, \$12 00



No. 12, WITTE'S ASSORTMENT.

No. 12—Witte's Razor Assortment, contains 12 Razors Assorted as follows: 1 Dozen Witte's Rattlers, 1 Dozen Witte's Conquerors, 1/6 Dozen No. 420 Witte Hardware Co., 1/6 Dozen Witte's Pride, 1/12 Dozen Our Daisy, 1/12 Dozen Matador, 1/12 Dozen Witte's Best, put up in a Velvet Lined Leather Roll, Per Roll, \$24 00

WRENCHES.



No. 1. HANDY.

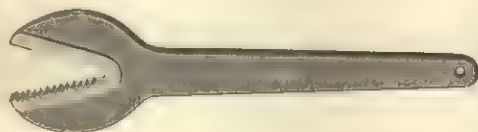
No. 1—5½ inches, Open Handle, Solid Cast Steel, Oil Tempered and Finished, holds round iron ¼ to ¾ inches, holds pipe ¼ to ¾ inches,
Per Dozen, \$4 00



No. 12. HANDY.

No. 12—5½ inches, Open Handle, Forged Steel, Oil Tempered and Finished, Polished Rib, holds pipe ¼ to ¾ inches, holds round iron ¼ to ¾ inches,
Per Dozen, \$4 50

Packed One Dozen in a box.



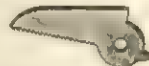
No. 2. HANDY.

No. 2—9 inches, Solid Handles, Forged, Oil Tempered and Finished, for ¼ to 1 inch round iron, ¼ to ¾ inch pipe,
Per Dozen, \$12 00



THE ELGIN.

Elgin 7 inches, Weight 10 oz., All Steel, Hardened Jaws, Fully Nickered,
Per Dozen, \$12 00



Extra Jaws, for Elgin Wrench, . . . Per Dozen, \$3 00

Packed One-half Dozen in a box.



ALWAYS READY.

DROP FORGED, OIL TEMPERED, CHASED BODY, POLISHED RIBS

No. 101—5 inches, holds nuts ¼ to ¾ inches,
Per Dozen, \$4 00

No. 102—7 inches, holds nuts ¼ to 1½ inches,
Per Dozen, 6 30



BAXTER'S "S."

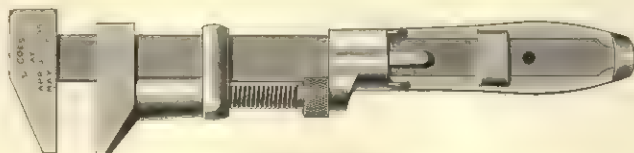
ADJUSTABLE. CAST STEEL. BRIGHT.

Baxter "S,"

Inches,	4	6	8	10
For Nuts, Inches, ¼ to ¾	¼ to 1	¼ to 1½	¼ to 1½	¼ to 1½
Per Dozen,	\$6 00	9.00	12.00	18.00

Packed One-half Dozen in a box.

WRENCHES.



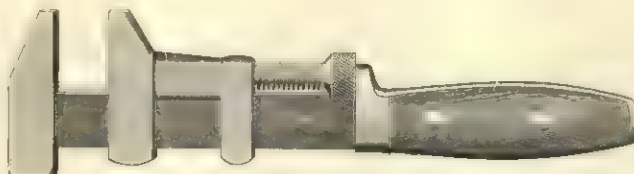
Cut Shows Construction.



L COES'.

Coes'—Black Finish, Improved Knife Handle.	Inches, ...	6	8	10	12	15	18	21
	Per Dozen, ...	\$9.00	10.00	13.00	14.00	24.00	30.00	36.00

6, 8, 10, 12 inches, Half Dozen; balance One-third Dozen in a package.



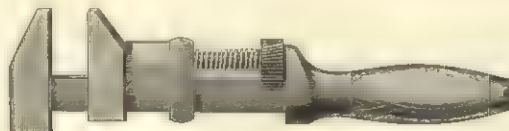
P. S. & W. SOLID HANDLE.

SOLID STEEL FORGING, ONE PIECE. BLACK FINISH.

P. S. & W.—Black Finish,	Inches, ...	6	8	10	12	15	18	21
	Will Open, inches, ...	$\frac{3}{4}$	$1\frac{1}{4}$	$1\frac{3}{4}$	$2\frac{1}{4}$	$2\frac{3}{4}$	3 8	$4\frac{1}{4}$
	Per Dozen, ...	\$9.00	10.00	12.00	14.00	24.00	30.00	36.00

All Wrenches packed in a wood box.

12-inch and under, One-half Dozen; 15 and 18-inch, One-third Dozen; 21-inch, One only.



AGRICULTURAL OR STANDARD, WROUGHT IRON.

Agricultural—Black,	Inches, ...	6	8	10	12	15
	Per Dozen, ...	\$9.00	10.00	12.00	14.00	24.00

One-half Dozen in a package.

WRENCHES AND PIPE TOOLS.



TRIMO PIPE WRENCH.

THIS WRENCH IS DROP FORGED FROM BAR STEEL; IS INTERCHANGEABLE IN ALL ITS PARTS; AN INSERTED JAW IS PLACED IN THE HANDLE, WHICH CAN BE RENewed FOR LITTLE EXPENSE WHEN DULL OR WORN.

	Length open in inches,	6	8	10	14	18	24	30	48
Trimo,	Takes from	$\frac{1}{2}$ in. pipe to $\frac{1}{2}$ in. pipe	$\frac{1}{2}$ in. pipe to $\frac{1}{2}$ in. pipe	$\frac{1}{2}$ in. pipe to $\frac{1}{2}$ in. pipe	$\frac{1}{2}$ in. pipe to $\frac{1}{2}$ in. pipe	$\frac{1}{2}$ in. pipe to $\frac{1}{2}$ in. pipe	$\frac{1}{2}$ in. pipe to $\frac{1}{2}$ in. pipe	$\frac{1}{2}$ in. pipe to $\frac{1}{2}$ in. pipe	$\frac{1}{2}$ in. pipe to $\frac{1}{2}$ in. pipe
	Each,	\$2.00	2.00	2.25	3.00	4.00	6.00	12.00	18.00
Trimo,	Jaw,	.67	.67	.75	1.00	1.33	2.00	4.00	6.00
Extra	Nut,	.20	.20	.27	.35	.42	.50	.65	.80
Parts,	Inserted Jaw,	.25	.25	.33	.50	.55	.65	1.00	1.25
	Frame,	.95	.25	.33	.45	.55	.65	.75	1.00

In ordering parts state the size of Wrench.

A 6 sizes to 46 inch packed in wood boxes of One-half Dozen; 36 and 48 inch packed in wood boxes of One-sixth Dozen.



CHAMPION CHAIN WRENCH.

	Nos.	0	1	2	3	4	5
Champion,	Capacity, inches,	$\frac{1}{2}$ to 1	$\frac{1}{2}$ to 2	$\frac{1}{2}$ to 3	$\frac{1}{2}$ to 6	$\frac{1}{2}$ to 10	2 to 14
	Length, inches,	12 $\frac{1}{2}$	19 $\frac{1}{2}$	28	38 $\frac{1}{2}$	60 $\frac{1}{2}$	85
	Weight, pounds,	1 $\frac{1}{2}$	4 $\frac{1}{2}$	8	15	28	47
	Each,	\$2.50	3.50	5.50	7.50	11.00	18.00
Extra Chain,	Each,	.75	1.00	1.50	2.50	4.00	6.00
Extra Jaws,	Per Pair,	1.00	1.75	2.75	4.00	5.50	7.50



BROWN'S PIPE TONGS.

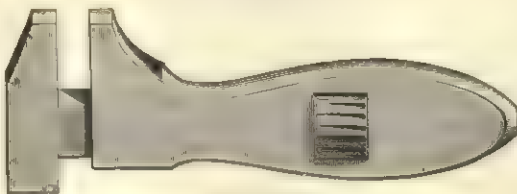
	Nos.	1	1 $\frac{1}{2}$	2	3	4
Brown's—Adjustable, Solid Steel, Drop Forged,	For Pipe, inches,	$\frac{1}{2}$ to $\frac{3}{4}$	$\frac{3}{4}$ to 1	$\frac{1}{2}$ to 1 $\frac{1}{2}$	1 to 3	1 $\frac{1}{2}$ to 3
	Per Pair,	\$1.30	1.65	2.00	3.00	6.00



STANWOOD'S PIPE CUTTERS.

	Nos.	1	2	3
Stanwood's—Case Hardened,	For Pipe, inches,	$\frac{1}{2}$ to 1	$\frac{3}{4}$ to 2	2 to 3
	Each,	\$1.50	2.25	7.00

WRENCHES.



Cut shows exact size.

No. 21, POCKET.

No. 21 Adjustable Pocket, Polished, 4 inch.

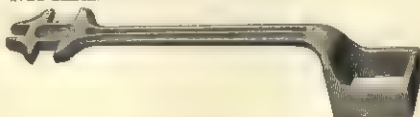
Per Dozen, \$4 50

No. 22 Adjustable Pocket, Nickel Plated, 4 inch.

Per Dozen, 5 20

Packed Half Dozen in a box

MALLEABLE WRENCHES.



CARRIAGE

No. 2320—Carriage,

Axle Nuts, Inches,
 Openings, Inches,
 Lengths, Inches,
 Per Pound.

1
 $\frac{1}{2}$, $\frac{3}{8}$, $\frac{3}{4}$
 9 $\frac{1}{2}$
 8

1 $\frac{1}{8}$
 $\frac{1}{2}$, $\frac{3}{8}$, $\frac{3}{4}$
 10

1 $\frac{1}{4}$
 $\frac{1}{2}$, $\frac{3}{8}$, $\frac{3}{4}$
 10



MACHINE.

No. 2335—Machine,

Length, Inches, 6 $\frac{3}{4}$ 7 $\frac{3}{4}$ 8 $\frac{1}{2}$
 Openings, Inches, $\frac{1}{2}$ and $\frac{5}{8}$ $\frac{3}{8}$ and $\frac{3}{4}$ $\frac{3}{4}$ and 7 $\frac{1}{8}$
 Per Pound, 8



FARMERS'.

No. 2345—Farmers', 6 inches Long, Openings 5 in.

$\frac{1}{2}$, $\frac{3}{8}$ inches, Square Hole $\frac{3}{8}$ inch, Slo
 for Saw Set $\frac{3}{16}$ inch, Per Pound, 8



"S" WRENCH.

No. 2340—"S" Wrench,

Length, Inches, 9 11 12 $\frac{1}{2}$
 Opening, Inches, 6 c. $\frac{3}{8}$, $\frac{1}{2}$ and $\frac{3}{4}$, 7 $\frac{1}{8}$, 1 $\frac{1}{2}$ $\frac{1}{2}$, $\frac{3}{8}$, $\frac{3}{4}$ and 7 $\frac{1}{8}$, 1 $\frac{1}{2}$, 1 $\frac{1}{2}$
 Per Pound, 8

JAWS FOR WRENCHES.



"YANKEE" JAWS.

Yankee Jaws will fit any size Monkey Wrench, can be adjusted to fit pipe or bolt from $\frac{1}{8}$ to 3 inches, Per Dozen Pair, \$6 00

WRENCHES.



HERCULES, AGRICULTURAL.

ALL STEEL, BRIGHT JAWS.

Hercules,	{ Inches,	6	8	10	12
	{ Per Dozen,	\$9.00	10.00	13.00	14.00

Half Dozen in a package.

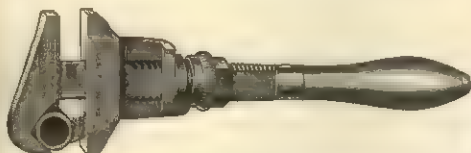


ACME, STANDARD.

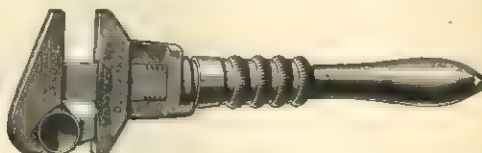
ALL STEEL, BRIGHT HARDENED JAWS.

Acme Standard,	{ Inches,	6	8	10	12
	{ Per Dozen,	\$9.00	10.00	13.00	14.00

Half Dozen in a wood box.



No. 43



No. 45.

BEMIS & CALL'S COMBINATION.

No. 43 Bright, with Short Nut,

Inches,	10	12	15	18
For Pipe,	$\frac{1}{4}$ to 1	$\frac{1}{2}$ to $1\frac{1}{2}$	$\frac{3}{4}$ to $2\frac{1}{4}$	$\frac{1}{2}$ to 3
Per Dozen,	\$23.00	26.00	37.00	66.00

No. 45—Bright, with Long Nut,

Inches,	10	12	15	18
For Pipe,	$\frac{1}{4}$ to 1	$\frac{1}{2}$ to $1\frac{1}{2}$	$\frac{3}{4}$ to $2\frac{1}{4}$	$\frac{1}{2}$ to 3
Per Dozen,	\$25.25	28.50	40.50	72.00

10 to 15 inch, One half Dozen in a wood box; 18 inch, One-sixth Dozen in a package



Style of 14 inch and smaller.



Style of 18 inch and larger

WRIGHT'S PATENT PIPE WRENCH.

Wright's—Forged Steel, Bar and Head with separate Inset Jaws,	Length, inches,	8	10	14	18
	Will open, inches,	$1\frac{1}{4}$	$1\frac{3}{4}$	$2\frac{1}{2}$	$3\frac{1}{2}$
	Per Dozen,	\$24.00	27.00	36.00	48.00



STILLSON'S PIPE WRENCHES

Stillson's—Blued, Double Spring,	Length, (open), inches,	6	8	10	14	18
	For Pipe, inches,	$\frac{1}{4}$ to $\frac{1}{2}$	$\frac{1}{2}$ to $\frac{3}{4}$	$\frac{1}{2}$ to 1	$\frac{1}{2}$ to $1\frac{1}{2}$	$\frac{1}{2}$ to 2
Extra Jaws for Stillson's Wrenches, Each,	Each,	\$3.00	3.00	2.25	3.00	4.00
		.67	.67	.75	1.00	1.33

8, 10 and 14 inch have Wood Handle.

COLUMBIA DISC GRAPHOPHONES.

TALKING MACHINES USING RECORDS MADE UPON FLAT
INDESTRUCTIBLE DISCS.

TYPE A-H.

A great advantage of these Graphophones is the form in which the records are made. These Flat discs, seven or ten inches in diameter and but a fraction of an inch in thickness, are shipped at very slight expense, and a large quantity may be stored in a very small space, as they can be placed together without scratching or marring the records. The spring motors furnished with both the \$40.00 and \$20.00 machines are constructed in the same thorough manner as our stand Graphophone motors (including Cabinet, Reproducer and 22-inch Horn as illustrated).

Type A-H. Each, \$40 00



TYPE A-J.

The type A-J Graphophone, although somewhat smaller and of less elaborate design than the \$40.00 machine, is of perfect construction and excellent finish. Both sizes of records can be used on it. Price, including Cabinet, Reproducer and 16-inch Horn, as illustrated,

Type A-J. Each, \$20 00

DISC RECORDS.

10-Inch Records, ... Each, \$1 00

7-Inch Records, ... " 50

DISC RECORDS—Hard Rubber, Indestructible.

No.	Band.
No. 188—American Republic March,	"
No. 363—Selections from Burgomaster,	"
No. 239—Coronation March	"
No. 826—Flying Dutchman,	"
No. 249—Invincible Eagle,	"
No. 126—Frangosa March,	Orchestra.
No. 334—Falling Leaves,	"
No. 552—Gem Polka,	"
No. 385—Hunky Dory,	"
No. 387—My Old Kentucky Home,	"
No. 339—Plantation Pastimes,	"
No. 451—Dixie Land,	Quartette.
No. 510—Lead Kindly Light,	"
No. 750—Creole Sue,	"
No. 378—Ain't Dat a Shame,	Vocal.
No. 655—Calm as the Night,	"
No. 312—Go Way Back and Sit Down,	"
No. 311—Honey Suckle and the Bee	"
No. 706—Life in the Alps,	"
No. 60—Holy City,	"
No. 44—Home, Sweet Home,	"
No. 708—Hush a Bye Baby,	"
No. 124—Can't Tell Why I Love, But I do,	"
No. 195—Heard the Jesus Say,	"
No. 112—I Need the Money,	"
No. 226—I've a Longing in My Heart for You, Louise	"
No. 319—I want to be a Military Man,	"
No. 58—Just for To-day,	"
No. 432—Kathleen Mavourneen,	"
No. 159—Let All Obey,	"
No. 5—The Lost Chord,	"
No. 317—Mama,	"
No. 320—Old Kentucky Home,	"
No. 376—Nothing but—Coon,	"

No.	Band.
No. 480—Arbitration March,	"
No. 251—Coon, Coon, Coon,	"
No. 370—Cottonfield Capers,	"
No. 183—Waltz from Faust,	"
No. 362—Good Morning, Carrie,	"
No. 628—Jolly Coppersmith,	"
No. 330—Creole Belles,	Orchestra.
No. 127—Florodora March,	"
No. 132—Good-bye Dolly Gray	"
No. 235—Lion Tamer,	"
No. 395—Nearer, My God, To Thee,	"
No. 124—Sleighing Party,	"
No. 455—Farmyard Medley,	Quartette
No. 749—Mandy Lee,	"
No. 448—Louisiana Lou,	Vocal
No. 46—Always,	"
No. 113—Good-bye Dolly Gray	"
No. 207—Hearts and Flowers,	"
No. 356—Killarney,	"
No. 765—My Lady Hottentot,	"
No. 174—The Old Folks at Home,	"
No. 56—Since that Day,	"
No. 352—Story of the Rose,	"
No. 399—The Story of the Violets Told,	"
No. 52—Sweet Annie Moore,	"
No. 358—Tale of the Bumble Bee,	"
No. 414—Then You'll Remember Me,	"
No. 193—Too Late,	"
No. 171—Uncle Harry, What is Love,	"
No. 571—Way Down Yonder in the Cornfield (Coon Song),	"
No. 194—Wearing of the Green,	"
No. 313—When Mr. Shakespeare Comes to Town,	"
No. 53—When the Harvest Days are Over,	"
No. 216—Sweet Sixteen,	"

Complete List of Disc Records Furnished on Application.

GRAPHOPHONES.

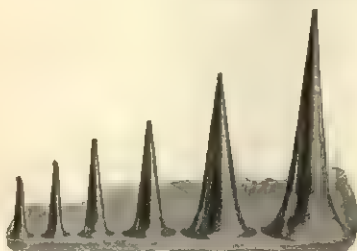
COLUMBIA GRAND GRAPHOPHONE,
TYPE "A-G."

A-G—Original Grand Graphophone, with clockwork motor, put up in a handsome oak carrying case. Each machine will run several Grand Records at one winding, and is equipped with a shaving knife, latest style recorder and reproducer; also horn. Price, \$50 00

THE IMPROVED SLOT GRAPHOPHONE
TYPE "B-S,"

B-S. For nickels or pennies (state which is wanted when ordering). A very simple and durable machine. A good moneymaker. Enclosed in a polished oak case with glass front and ends. Can furnish with horn or tubes. Price, ... \$30 00

GRAPHOPHONE SUPPLIES.



HORNS.

14 inch Hammered Brass, ...	\$ 1 00
18 inch Hammered Brass, ...	2 00
24 inch Hammered Brass, ...	2 50
30 inch Hammered Brass, ...	5 00
42 inch Hammered Brass, ...	10 00
56 inch Hammered Brass, ...	15 00

HEARING TUBE

Single Hearing Tube, ...	\$0 50
2-Way Hearing Tube, ...	1 00
3-Way Hearing Tube, ...	1 50
4-Way Hearing Tube, ...	2 00
5-Way Hearing Tube, ...	2 50
6-Way Hearing Tube, ...	3 00
11-Way, with nickel-plated reservoir complete, ...	7 50

BLANK CYLINDERS.

P (small size), each	\$0 25
G (large size), each	75

HORN STANDS.

Imperial Floor Stand, ...	\$1 50
Table Stand, suitable for holding 14 or 18 inch horn, ...	75

CYLINDER BOXES.

Box with pegs for 12 P Cylinders, ...	\$0 50
Box with pegs for 24 P Cylinders, ...	1 00
Box with pegs for 6 G Cylinders, ...	75

RECORDER AND REPRODUCERS

Recorder or Reproducer for Type Q, Q-B, Q-C and Q-Q, each, ...	\$2 50
Recorder or Reproducer for Type B, A-A, A-B, A-T, A-G and H-G, each, ...	5 00
Diaphragm Glasses, each, ...	25

CANVAS-COVERED CYLINDER CASE.

For 12 P Cylinder, ...	\$2 50	For 72 P Cylinder, ...	\$ 7 50
For 24 P Cylinder, ...	4 00	For 12 G Cylinder, ...	7 50
For 36 P Cylinder, ...	5 00	For 24 G Cylinder, ...	12 50



Peg Case for 36 "P" Cylinders.

Quotations on other small supplies furnished on request.

Write for Our Special Catalogue of Records.

GRAPHOPHONES.

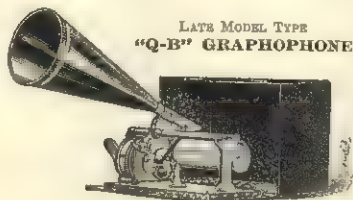
SIMPLE IN OPERATION.

MUCH PLEASURE.

LITTLE COST.

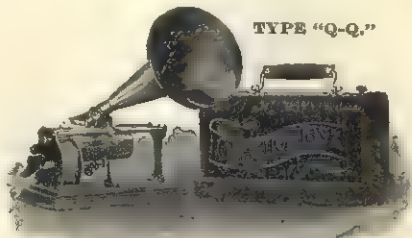
THE DEMAND IS INCREASING EVERY DAY.

WHY NOT PUT IN A SAMPLE LINE.



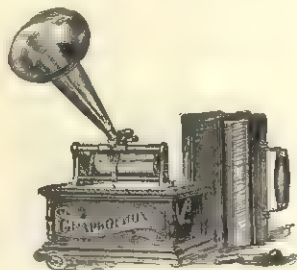
LATE MODEL TYPE
"Q-B" GRAPHOPHONE

Q-B. -Cheap in price but not quality, correct and distinct in reproduction, well made and finished. Clockwork motor, complete, with cover, horn and reproducer, each \$8 00



TYPE "Q-Q."

Q-Q. -With simple, compact, clockwork motor, handsome bent wood carrying case, recorder for making records, latest improved reproducer and nickel-plated horn, all complete for \$10 00



"A-A" GRAPHOPHONE.

ENTIRELY NEW STYLE

The Cabinet furnished with this Graphophone is of exceptionally handsome design and finish. Power is furnished by a spring motor which occupies the lower part of the cabinet, within which it is entirely hidden. The motor winds with a crank instead of with a key, as is the case with the lower-priced machines.

This machine, all complete, with recorder reproducer, and nickel-plated horn, each \$18 00

COMBINATION GRAPHOPHONE TYPE A-B.

A-B is an entirely new type of Graphophone which, on one machine reproduces both the large and small records. It also makes records on both styles of cylinders. The change from one record or cylinder to the other can be made in ten seconds, and requires no tool whatever. Reproduces as loud as the original Grand, is equipped with a new speed indicator, latest style recorder and reproducer, 14-inch Aluminum Horn, and is put up in a very handsome cabinet. Price . . . \$25 00



Write for Our Special Catalogue of Records.

GRAPHOPHONE RECORDS.

P. (SMALL RECORDS), 50c. EACH; \$5.00 PER DOZEN.

G. (LARGE RECORDS), \$1.00 EACH.

Columbia Records are the best. Order by number, and state whether Grand or Small Records are wanted. Complete list of 1,400 selections furnished on application. Below is given a list of the most popular selections.

SOUSA'S BAND.

- 500 Liberty Bell March.
- 506 King Cotton March.
- 507 Jolly Coopersmith.
- 509 Circus Gallop.
- 519 Manhattan Beach March.
- 532 The Stars and Stripes Forever.
- 538 Coon Band Contest.
- 31633 The Invincible Eagle.—Sousa's Latest.

GILMORE'S BAND.

- 31529 American Students' Waltz.
- 31530 Bunch of Blackberries. (Cake Walk.)
- 31509 Selections from the Burgomaster.
- 31537 Devil's Call.
- 31597 Hearts and Flowers.
- 31527 An Indian Chase. (Descriptive.)
- 31559 The Jolly Cadets.
- 31538 Mr. Thomascat. (March Comique.)
- 31543 The Queen's Trumpeters.
- 31526 Sousa's Band Coming. (Descriptive.)
- 31528 Thunder and Lightning. (Descriptive.)
- 1516 Dixie.
- 1641 At a Georgia Camp Meeting.
- 31417 A Warm Reception.
- 1522 Nearer, My God, to Thee.
- 1514 America.
- 1642 International Cake Walk.
- 1539 Rock of Ages.

COLUMBIA ORCHESTRA.

- 31525 Echoes of the Forest (Descriptive).
- 15139 Limited Express (Descriptive).
- 31524 Nations Before Pekin. (Descriptive).
- 15086 Alabama Walk Around.
- 15132 Angels' Serenade.
- 15194 Battle of Manila. (Descriptive.)
- 15162 The Blue Danube Waltz.
- 15206 Buglers' Dream.
- 15010 Dancing in the Kitchen.
- 15117 Lancers, El Capitan.
- 15168 Highwayman Waltz.
- 15028 Kentucky Jubilee Singers.
- 15204 The Merry Sleigh Bells.
- 15146 The Village Orchestra.
- 15190 Off to the Races.
- 15113 La Paloma.

BANJO DUETS.

- 31590 The Colored Major.
- 31589 The Mosquito Parade.
- 31591 Peace Forever March.
- 31593 Sa-Yo March.

PICCOLO SOLOS.

- 23526 Bob-o-Link Schottische.
- 23536 Dance of the Hoboes.
- 23501 Darkies' Jubilee.
- 23500 Golden Robbin Polka.
- 23503 Irish Reel.
- 23535 Jolly Sailors.
- 23509 Old Folks at Home.
- 23604 Skirt Dance.

MINSTREL RECORDS.

- 13001 A High Old Time.
- 13004 Laughing Song.
- 13005 Here Dem Bells.
- 13009 Hello My Baby.
- 13008 Mamie Riley.
- 13002 Old Log Cabin.
- 13010 The Old Folks at Home.

TALKING RECORDS.

Dutch Dialect.

- 31551 Schultz on Gambling.
- 31552 Schultz at Delmonicos.
- 31553 Schultz Out West.
- 31554 Schultz at Church.
- 31555 Schultz and the Savage Mosquito.

QUARTETTES.

- 31583 The Owl and the Pussy Cat.
- 31548 Soldier's Farewell.
- 9071 The Blue and the Grey.
- 9067 Camp Meeting Jubilee.
- 9068 Carry Me Back to Old Virginia.
- 9039 Church Scenes from the Old Homestead (with Church Bell Effect).
- 9046 Medley of Coon Songs.
- 9037 Farmyard Medley (Descriptive).
- 9049 Fireman's Duty (Descriptive).
- 9010 I've Gwine Back to Dixie.
- 9008 Moonlight on the Lake.
- 9041 Steamboat Medley (Descriptive).
- 9040 Sleighride Party (Descriptive).
- 9038 Trip to the County Fair (Descriptive).
- 9061 Where is My Wandering Boy To-night.
- 9029 Way down yonder in the Cornfield.
- 9012v Nearer, My God, To Thee.
- 9018 The Old Oaken Bucket.
- 9019 My Old Kentucky Home.
- 30801 Yale College Song, with College Yell.
- 9011 Rocked in the Cradle of the Deep.

GRAPHOPHONE RECORDS.

VOCAL TRIO

- 7705 Mocking Bird Medley.
 7706 In front of the Old Cabin Door.
 7707 Camp Meeting.
 7708 Alpine Specialty.
 9341 Laughing Trio.
 9347 Unchain the Dogs of War.

VOCAL DUETS.

- 8410 Banks of the Wabash.
 8419 He Carved His Mother's Name Upon a Tree.
 8418 The Hymn You Loved the Best.
 6001 Kiss Duet from Mikado.
 8420 In the Shadow of the Pines.
 31346 Sweet Genevieve.
 8421 While the Leaves Come Drifting Down.

VIOLIN SOLOS.

- 27003 Because.
 27002 Ben Bolt (Special Arrangement).
 27004 Gypsy Dance.
 31492 The Holy City.
 27000 The Mocking Bird.
 27010 Schubert's Serenade.

MANDOLIN SOLOS.

- 31385 Medley of Coon Songs.
 31390 Elf In Dance.
 31389 Hawthorne Club Two-step.
 31388 La Bonita Waltz.
 31394 Tidings of Love Waltz.
 31386 Zenda Waltz.

VOCAL SOLOS.

CHURCH ORGAN ACCOMPANIMENT.

- 31360 Abide with Me.
 31361 Almost Persuaded.
 31363 I Need Thee Every Hour.
 31365 Just as I am.
 31366 Ninty and Nine.
 31369 Sun of My Soul.

VOCAL SOLOS.

BANJO ACCOMPANIMENT.

- 7200-a A Hot Time on the Levee.
 7200-c A Hot Time in the Old Town To-Night.
 7200-g Old Black Joe.
 31402 Blinney Come Kiss Your Baby.
 31405 That Minstrel Man of Mine.
 31403 If You Love Your Baby Make the Goo Goo Eyes.
 7200-e All Coons Look Alike to Me.
 31404 Cindy I Dreams About You.

VOCAL SOLOS.

PIANO ACCOMPANIMENT.

- 31549 Absence Makes the Heart Grow Fonder
 31577 Carry Nation in Kansas (Comic).
 31567 The Choir Invisible.
 31603 Coon, Coon, Coon.
 31511 Everything is a Coming My Way.
 31510 My Blushing Rosie.
 31578 My Jersey Lilly.
 31521 When the Harvest Days are Over.
 31587b Wrap Me in the Stars and Stripes.
 31540 Tale of the Kangaroo.
 31546 The Spider and the Fly.
 31585 She's an All Right Gir'.
 31582 Rueben Haskins from Skowhegan (Comic).
 5845 Asleep in the Deep.
 5854 The Bell of Murray Hill.
 4008 The Bird in a Gilded Cage.
 5842 The Blue and the Grey.
 7711 Bye-bye my Honey.
 4123 Columbia the Gem of the Ocean.
 31342 Every Race has a Flag but the Coon.
 5851 Fatal Rose of Red.
 4057 For Old Times Sake.
 7181 The Girl I Loved in Sunny Tennessee.
 31311 Good-Bye Dolly Gray.
 5847 Here's to the Rose.
 6375 His Little Wife was with Him all the Time (Comic).
 5801 Holy City.
 6309 I Couldn't.
 14032 I'm Old But I'm Awfully Tough.
 31441 Just Because She Made Them Goo Goo Eyes.
 5037 Just One Girl.
 4272 Just When I Needed You Most.
 31341 Lam, Lam, Lam.
 4240 Little Black Me.
 5827 Mandy Lee.
 7502 Ma Tiger Lilly.
 5362 The Mick Who Threw the Brick.
 7474 My Blackbird.
 4590 My Love's the Same.
 4188 My Wild Irish Rose.
 7713 Medley of Negro Songs.
 4197 One Night in June.
 31372 Only a Hundred Girls.
 31423 Picking on a Chicken Bone.
 4599 Picture No Artist Can Paint.
 31433 Policy Sam.
 4273 She Rests by the Suwanee River.
 31489 Six Little Wives.
 8008 Sweet Rose (With Yoodle).
 5837 They Call My Darling Jane.
 7703 Turkey in the Straw.
 7461 Who Dat Say Chicken in Die Crowd.
 4256 What is Home without Love.
 31444 Two Irish Eyes of Tender Blue.
 4576 She's more to be pitied than Centured.
 4645 Sing Me a Song of the South.
 4598 My Little Georgie Rose.

CORK SCREWS.



No. 36

No. 36—Tinned, Maple Handle, Twisted Shank, Duplex Screw, ... Per Dozen, \$3.50



No. 18

No. 18 Tinned, Maple Handle, Twisted, Double Shank, ... Per Dozen, \$3.00

Packed One Dozen in a box.



No. 35.

No. 35—Tinned, Crucible Steel, Wire Handle, Double Twisted Shank, Duplex Screw, . . Per Dozen, \$3.00



No. 42.

No. 42 Cast Steel, Hand Forged, Maple Handle, ... Per Dozen, \$3.00

No. 50L—Crucible Steel, Rosewood Handle, ... Per Dozen, 2.00

Packed One Dozen in a box.

CORK SCREWS.



No. 400



No. 250L

No. 400—Nickel Screw, Bessemer Steel, Maple Handle.

Per Dozen, \$0 60

No. 250L—Nickel Screw, Norway Steel, Maple Handle.

Per Dozen, \$1 25

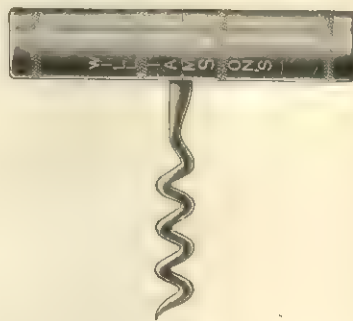
Packed One Dozen in a box.



No. 34 $\frac{1}{2}$
OPEN.



No. 34 $\frac{1}{2}$
CLOSED.



No. 70.

No. 34 $\frac{1}{2}$ Pocket, Nickel Plated Screw and Handle, Double Twisted Shank, Duplex Screw, Crucible Steel.

Per Dozen, \$2 50

No. 70—Folding Pocket, Crucible Steel, Nickel Plated Screw and Handle.

Per Dozen, \$2 25

Packed One Dozen in a box.

POWER CORK SCREWS.



No. 600.

No. 600—Nickel Plated, Tempered Steel Wire, Polished Ash Handle, ... Per Dozen, \$4 00
Packed One Dozen in a box.



No. 1542.

No. 1542—Nickel Plated, Crucible Steel, Boxwood Handle, Combined Crown Opener, Seal Lifter and Wire Breaker, . . Per Dozen, \$8 00



No. 8082.

No. 8082—Nickel Screw and Cup, Norway Steel, Maple Handle, Combined Crown Opener, Seal Lifter and Wire Breaker, Per Dozen, \$5 00

Packed One Dozen in a box



Drawing a Cork.



Breaking a Wire.



Lifting a Seal.



Removing a Crown.

The above illustrates the different ways of using Nos. 1542 and 8082 Cork Screws.

CORK SCREWS.



No. 50.

No. 50—Cast Steel, Hand Forged, **Lignumvitæ**
Handle, Per Dozen, \$4 50



Cut Shows No. 66

Nos 66 AND 119.

No. 66—Cast Steel, Hand Forged, Brass Countersunk
Cap, Riveted Shank, **Rosewood** Handle,
Per Dozen, \$4 00

No. 119 Cast Steel, Riveted Shank, Enameled Handle,
Per Dozen, \$2 00

Packed One Dozen in a box.

CORK SCREWS ON CARDS.



No. 150.



No. 350

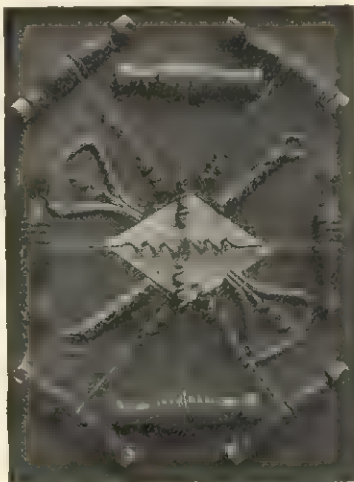
POCKET CORK SCREWS.

No. 150—Assortment, One Dozen on a Card, Size of
Card $9\frac{1}{4} \times 7\frac{1}{4}$ inches, Per Card, \$3 00

No. 350—Assortment, One Dozen on a Card, Size of
Card $9\frac{1}{4} \times 7\frac{1}{4}$ inches, Per Card, \$3 00

Packed Six Cards in a carton.

CORK SCREWS ON CARDS.



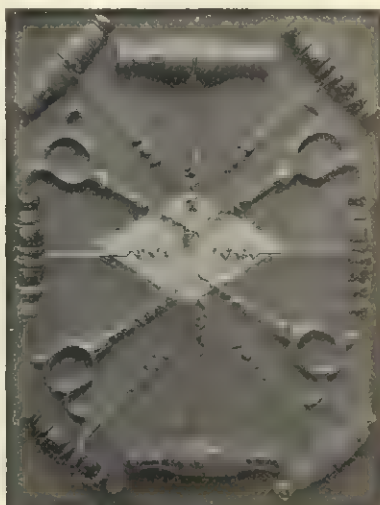
No. 15

No. 15—Assortment, One Dozen on a Card, Size of Card $11\frac{3}{4} \times 8\frac{3}{4}$ inches, . . . Per Card, \$2 00
Packed Six Cards in a carton.



No. 051.

No. 051—Assortment, One Dozen on a Card, Size of Card $11\frac{3}{4} \times 8\frac{3}{4}$ inches, . . . Per Card, \$3 00



No. 12.

No. 12—Assortment, One Dozen on a Card, Size of Card $11\frac{3}{4} \times 8\frac{3}{4}$ inches, . . . Per Card, \$1 50

LANTERNS.



DIETZ'S REGULAR.

No. 0 R Dietz's Regular Tubular, Bright Tin, No. 1 Burners, $\frac{3}{8}$ -inch Wicks, No. 0 Globes, Founts hold sufficient Oil to Burn 17 Hours, . . . Per Dozen, \$9 00

Can be filled, lighted and regulated without removing the globe.

Packed One Dozen in a box. Weight Per Dozen 35 Pounds.



DIETZ'S VICTOR.

No. 0 V-Dietz's Victor Tubular, Bright Tin, No. 1 Burners, $\frac{3}{8}$ -inch Wicks, No. 0 Globes, Founts hold sufficient Oil to Burn 17 Hours, . . . Per Dozen, \$9 50

The lever on the side tube raises the globe to light, and locks the globe securely on the burner.

Packed One Dozen in a box. Weight Per Dozen 35 Pounds.



Close



Open

DIETZ'S ROYAL.

No. 2 DR-Dietz's Royal Tubular, Bright Tin, No. 2 Burners, 1-inch Wicks, No. 0 Globes, Founts hold sufficient Oil to Burn 18 Hours, . . . Per Dozen, \$13 00

The lever on the side tube raises the globe to light, and locks the globe securely on the burner.

Packed One Dozen in a box. Weight per Dozen 40 Pounds.



Close



Open

DIETZ'S CRYSTAL.

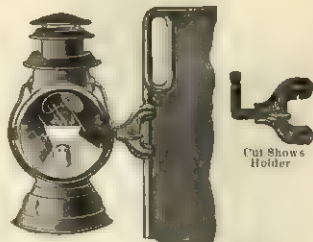
No. 0 DC-Dietz's Crystal Tubular, Bright Tin, No. 1 Burners, $\frac{3}{8}$ -inch Wicks, No. 0 Globes, Glass Founts hold sufficient Oil to Burn 17 Hours, . . . Per Dozen, \$13 00

The lever on the side raises the globe to light, and locks the globe securely on the burner.

Packed One Dozen in a box. Weight Per Dozen 45 Pounds.

For Lantern Globes and Wicks, see page 1141.

LANTERNS.



DIETZ'S TUBULAR DRIVING LAMP.

No. DTD—Dietz's Tubular Driving Lamps,
Japanned Black. Founts hold sufficient
Oil to Burn 24 Hours. Per Dozen, \$42 00

Packed One-half Dozen in a case, Weight 35 Pounds.

Although but a $\frac{3}{8}$ -inch Wick is used the combustion is so perfect and the rays so concentrated by the reflector that a volume of light of 30 candle power is thrown ahead. Placed in front of dash by means of a holder (as shown in cut), also fits over the ordinary size lamp bracket used on carriages and surreys. Each lamp has a bail so that it can be used as a hand lantern.



DIETZ'S REFLECTOR.

No. DRT—Dietz's Reflector, Tubular,
Bright Tin, No. 1 Long Cone Burners,
 $\frac{3}{8}$ -inch Wicks, No. 0 Globes, Founts
hold sufficient Oil to Burn 15 Hours.
Per Dozen, \$22 00

Packed One Dozen in a case, Weight 64 Pounds.

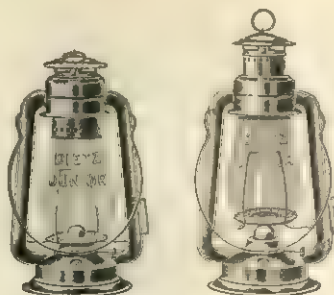
Can be filled, lighted and regulated without removing the globe.



KLONDIKE.

No. K Klondike, Brass, Height 8 $\frac{3}{4}$ inches, has
Special Lighting Device by which it can be
Lighted without taking off Globes,
Per Dozen, \$5 00

Packed One Dozen in a paper box.



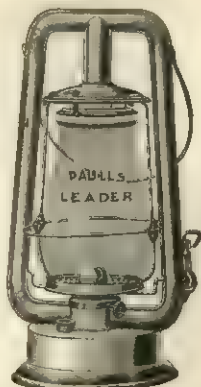
DIETZ'S JUNIOR, BRASS.

No. 100—Dietz's Junior, Brass, (Satin Finish
and Lacquered so as to Stay Bright),
Weight 38 ounces, Height 12 inches,
takes $\frac{5}{8}$ -inch Wicks and Junior Globes.
Burns Kerosene (Coal Oil). Per Dozen, \$18 00
No. 200—Dietz's Junior, Nickel Plated,
Brass, Otherwise Same as No. 100.
Per Dozen, 22 00

Packed One Dozen in a box.

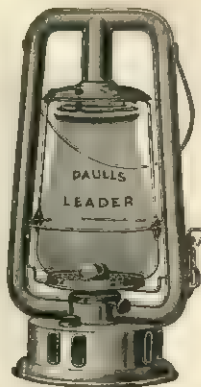
For Lantern Globes and Wicks, see page 1141.

LANTERNS.



PAULL'S LEADER.

No. O/P—Paull's Leader, Tubular, Bright Tin.
One Piece Tube, Lock Burners, Crank
Lift, Bottoms of the Oil Pot is not Soldered,
but is Forced in by Steam Pressure, thus
Rendering Leakage Impossible, No. 1
Burners, $\frac{5}{8}$ -inch Wicks, . . . Per Dozen, \$9 50
Packed One Dozen in a box, Weight 40 Pounds.



PAULL'S LEADER, GLASS FONT.

**No. O/PG—Paull's Leader, Tubular, with Glass
Font, One piece Tube, Lock Burn-
ers, Bright Tin, No. 1 Burners, $\frac{5}{8}$ -inch
Wicks, ... Per Dozen, \$13 00**
Packed One Dozen in a box, Weight 47 Pounds.



DIETZ'S JUNIOR BLIZZARD.

No. JB—Dietz's Junior Blizzard, Cold Blast,
Bright Tin, 13 inches High, Weight 26
ounces, $\frac{3}{8}$ -inch Wicks, Junior Globes,
Founts hold sufficient Oil to Burn 14 $\frac{1}{2}$
Hours, Absolutely Wind Proof, . . Each, \$1 00
Packed One Dozen in a case, Weight 32 Pounds.

The lever on the side tube raises the globe to light,
and locks the globe securely on the burner.



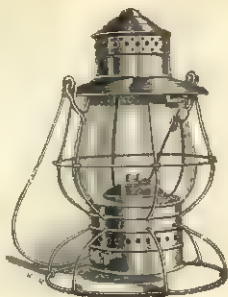
DIETZ'S BLIZZARD.

**No. 2/B—Dietz's Blizzard (Cold Blast), Bright
Tin, No. 2 Burners, 1-inch Wicks, No. 13
Blizzard Globes, Founts Hold Oil to Burn
19 Hours, ... Each, \$1 50**
Packed One-half Dozen in a case, Weight 26 Pounds

This Lantern is fed exclusively with No. 1 air that comes
from above, being taken in through openings between the
two rings at the top.

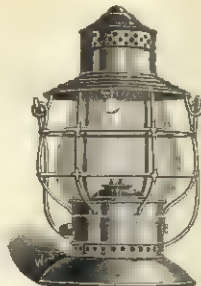
For Lantern Globes and Wicks, see page 1141.

LANTERNS.



No. 9.

No. 9—Railway King. Guards are Continuous from Top to Bottom, and are Firmly Clinched Around the Lower or Bottom and Top Wire Rings, has Hinge and Spring Top Globe Holder, takes Regular Globe, has Bayonet or Side Spring Oil Cup, with No. 1 Flat Tube Burner, . . . Per Dozen, \$12 00



No. 39.

No. 39—Standard R. R. Polished Tin. Double Guard Hinged Top and Removable Globe, Fitted with Bayonet Catch, Oil Fount Drawn from One Piece of Metal and Retinned, Burns Lard Oil or Railroad Signal Oil, . . . Per Dozen, \$10 50

Packed One Dozen in a case, Shipping Weight 40 Pounds.



BRILLIANT.

Brilliant—Polished Tin. Hinged at Top and Bottom for Removing Globe, Double Guard, Burns Kerosene (Coal Oil), . . . Per Dozen, \$13 00

Packed One-half Dozen in a box, Shipping Weight 40 Pounds.



No. 4, FAVORITE.

No. 4—Favorite Conductors', Brass. Highly Polished and Nickel Plated, $\frac{3}{4}$ -inch Wick, has Spring Globe Holder and Screw Bottom Oil Cup, takes Favorite Globe, . . . Per Dozen, \$80 00



IDEAL.

Ideal—Conductors', Brass. Highly Polished and Nickel Plated, Hinge Top and Screw Bottom, Outside Wick Raising Attachment, Height 11 inches, Bottom $\frac{5}{8}$ inches in Diameter, 1-inch Wick, . . . Per Dozen, \$110 00



No. 2, PULLMAN

No. 2—Pullman Conductors', Brass. Highly Polished and Nickel Plated, Outside Wick Raising Attachment, $\frac{5}{8}$ -inch Wick, has Spring Globe Holder and Screw Bottom and Cup, . . . Per Dozen, \$80 00

LANTERNS.



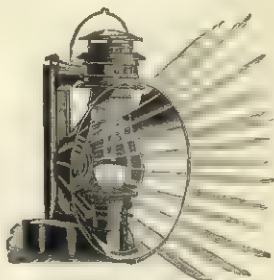
DIETZ'S BLIZZARD DASH BOARD.

No. 2, BD--Dietz's Blizzard Dash, (Cold Blast), Japanned Blue. No. 2 Burners, 1-inch Wicks, No. CB Blizzard Globes, Fluted with Reflectors and Bull's Eyes on Backs and Springs for use on Dash,

Each. \$1 75

Packed Six in a case, Weight 89 Pounds.

The lever on the side tube raises the globe to light, and locks the globe securely on the burner.



DIETZ'S TUBULAR SEARCH LIGHT.

No. 30 -Dietz's Tubular Search Light, Japanned Blue, No. 2 Burners, 1-inch Wicks, No. 0 Globes, Bull's Eye Lenses, Bright Tin Reflectors 12 inches in Diameter and 7 inches Deep, . . . Per Dozen, \$30 00

Packed One-quarter Dozen in a case, Weight 29 Pounds.

Burns on the Cold Blast principle and spreads light over a large surface. Fount holds sufficient oil to burn 25 hours. Can be filled, lighted and regulated without removing the globe.



DIETZ'S BUCKEYE DASH BOARD.

No. 0, DD Dietz's Buckeye Dash, Japanned Blue, No. 1 Burners, $\frac{3}{8}$ -inch Wicks, No. 0 Globes, Bull's Eye Lenses Secured to the Plates, Founts hold sufficient Oil to Burn 17 Hours, . . . Per Dozen, \$13 00

Packed One Dozen in a case, Weight 52 Pounds.

The lever on the side raises the globe to light, and locks the globe securely on the burner



PAULL'S LEADER DASH BOARD.

No. 0, PD Paull's Leader Dash Board, One-piece Tubes, Lock Burners, Crank Lifts, No. 1 Burners, $\frac{3}{8}$ -inch Wicks, No. 0 Bull's Eye Lantern Globes, Blue Japanned, . . . Per Dozen, \$13 00

Packed One-half Dozen in a box, Weight 25 Pounds.

For Lantern Globes and Wicks, see page 1141.

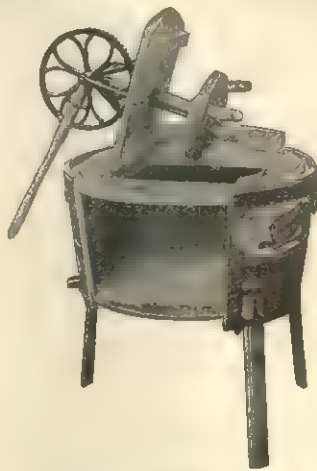
WASHING MACHINES.



No. 1, ANTHONY WAYNE.

No. 1—Anthony Wayne, Inside Dimensions 23 x 11 inches. Inside Crate is Independent of Tub and Can Be Removed After Washing. Made of White Pine, Painted and Grained Ash Color. Each, \$

Weight Each Crated 53 Pounds.



No. 22, ANTHONY WAYNE.

No. 22—Anthony Wayne, Inside Dimensions 23 x 11 inches. Corrugated Staves and Bottom. Made of White Pine. Painted and Grained Ash Color. Each, \$

Weight Each Crated 45 Pounds.



No. 5. WAYNE AMERICAN.

No. 5—Wayne American, Inside Dimensions. 22 1/2 x 11 inches. Made of White Pine. Painted and Grained Ash Color, Corrugated Staves and Bottom. Each, \$

Weight Each Crated 44 Pounds.



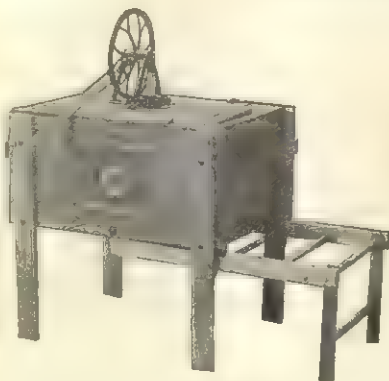
No. 15, WAYNE ROTARY.

No. 15—Wayne Rotary, Inside Dimensions 22 1/2 x 11 inches. Galvanized Pin Wheel, Gearing is Covered with a Shell Cover Preventing Breakage. Hand wheel Detaches from Gearing when Lid is Raised. Each, \$

Weight Each Crated 60 Pounds.

For Repairs see Pages 474 and 475.

WASHING MACHINES.

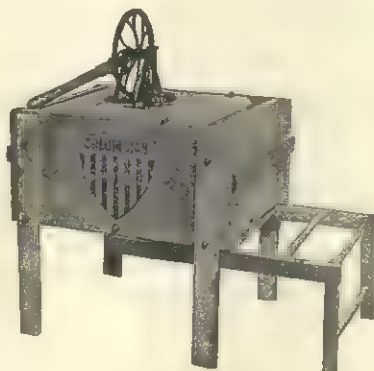


Nos. 2 AND 3, WESTERN STAR.

MADE OF WHITE PINE, PAINTED AND GRAINED ASH COLOR, ALL IRON PARTS ARE TINNED.

No. 2—Western Star, Inside Dimensions $17\frac{1}{2} \times 23\frac{1}{2} \times 10\frac{1}{2}$ inches, Weight Each Crated 82 lbs., Each, \$

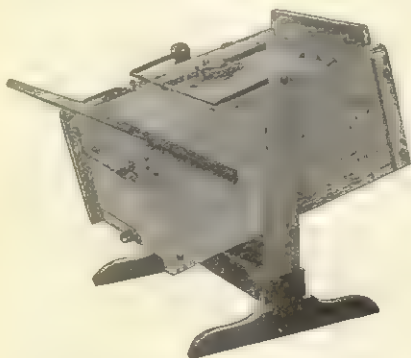
No. 3—Western Star, Inside Dimensions $19\frac{1}{2} \times 25\frac{1}{2} \times 11\frac{1}{2}$ inches, Weight Each Crated 88 lbs., Each,



No. 13, COLUMBIA.

No. 13—Columbia, Inside Dimensions $19\frac{1}{2} \times 22\frac{1}{2} \times 10\frac{1}{2}$ inches, Made of White Pine, Painted and Grained Ash Color, Adjustable to the Amount of Clothes to be Washed, Each, \$

Weight Each Crated 66 Pounds.



Nos. 11 AND 12, WAYNE COMBINATION.

MADE OF THE BEST YELLOW COTTONWOOD, COMBINATION PIN WHEEL MOTION AND OSCILLATING MOVEMENT OF THE WHOLE SUD BOX.

No. 11—Wayne Combination, Inside Dimensions $15\frac{1}{2} \times 25\frac{1}{2} \times 10\frac{1}{2}$ inches, Weight Each Crated 69 lbs., Each, \$

No. 12—Wayne Combination, Inside Dimensions $17\frac{1}{2} \times 25\frac{1}{2} \times 12\frac{1}{2}$ inches, Weight Each Crated 78 lbs., Each.



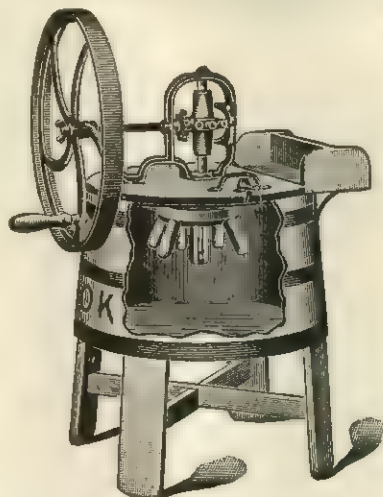
No. 8, GOOD LUCK.

No. 8—Good Luck, Inside Dimensions $19 \times 28 \times 13$ inches, Painted Red, Each, \$

Weight Each Crated 43 Pounds.

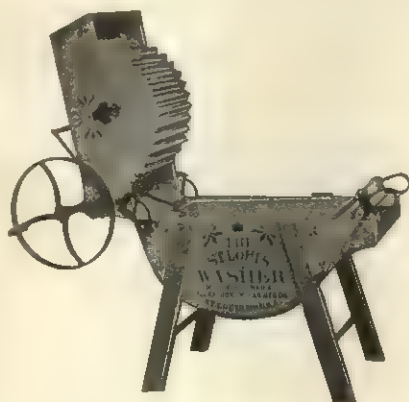
For Repairs see pages 474 and 475.

WASHING MACHINES.



THE "O K" WASHER.

The "O K" - Round Rotary, Revolving Steel Ball Gearing, Tub Made of Louisiana Red Cypress, Legs are Solid with Tub, Wheel Turns Right or Left, Pin Wheel or Dasher Reverses Automatically, Tub has a Wringer Box Fastened with Steel Brackets, the Sides and Bottom are Corrugated, ... Each, \$9 50
Weight Each Crated 60 Pounds.



Interior View.



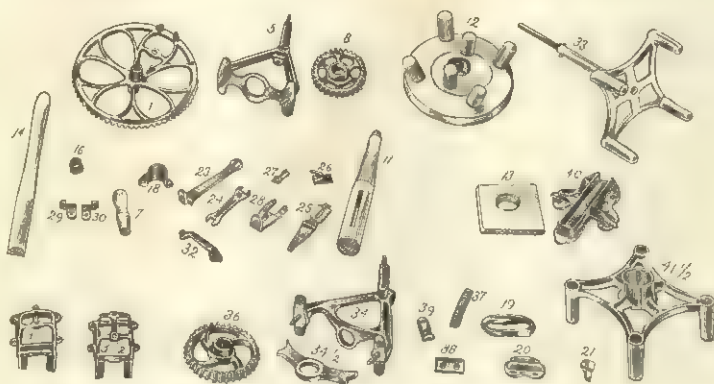
Exterior View.

No. 41. ST. LOUIS WASHER.

No. 41 St. Louis, Dimensions of Lower Rubber $11\frac{3}{4} \times 14\frac{1}{2} \times 24\frac{3}{4}$ inches, has Two Cylinders Working in Opposite Directions at the Same Motion of the Crank Shaft, Rubbers on Both Cylinders are Rounded and Will Not Tear the Clothes, Made of Selected Stock and Well Finished, ... Each, \$
Weight Each Crated 103 Pounds.

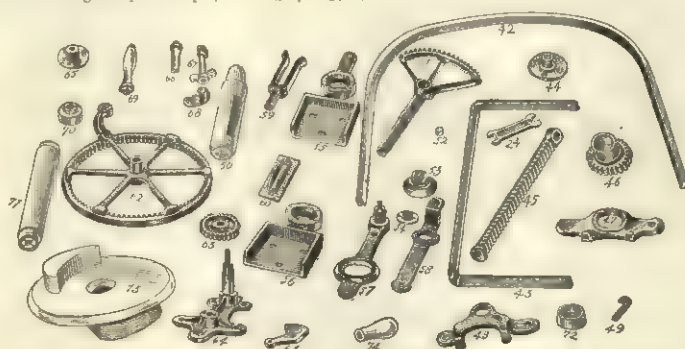
For Repairs see Pages 474 and 475.

REPAIRS FOR WASHING MACHINES.



REPAIRS FOR THE FOLLOWING WASHING MACHINES No. 1, ANTHONY WAYNE, No. 22, ANTHONY WAYNE, No. 5, WAYNE AMERICAN; Nos. 2 and 3, WESTERN STAR; No. 13, COLUMBIA; No. 8, GOOD LUCK.

No. 1—Main Wheel, ...	Each, \$0 25	No. 27 —Buttons, ...	Per Pair, \$0 10
No. 5—Arch, ...	Each, 25	No. 28 —Wheel Guide, ...	Each, 15
No. 8 Pinion, ...	Each, 20	Nos. 29 and 30 Support for Basket Rack, ...	Per Pair, 10
No. 11 Post, ...	Each, 25	No. 31 —Malleable Iron Leg Holder, ...	Each, 25
No. 12 Wood Pinwheel, ...	Each, 30	No. 31½ —Malleable Iron Leg Holder, ...	Each, 25
No. 13—Pinwheel Cap, ...	Each, 10	No. 32 —Lid Handle, ...	Each, 10
No. 14—Long Handle, ...	Each, 25	No. 33 —Post and Pinwheel, Malleable, ...	Each, 60
No. 16 Malleable Iron Ferrule, ...	Each, 10	No. 34 Arch, ...	Each, 30
No. 17 Plug, ...	Each, 10	No. 34½ Socket for Arch, ...	Each, 10
No. 18—Spout, ...	Each, 10	No. 36 —Pinion, ...	Each, 20
No. 19 Tub Handle, ...	Per Pair, 15	No. 37 —Spring, ...	Each, 05
No. 20 Handle Sockets, ...	Per Pair, 15	No. 38 —Rest, ...	Each, 05
No. 21 Malleable Iron Ferrule for Rack, ...	Each, 10	No. 39 —Rest, ...	Each, 05
No. 23 Brass, ...	Each, 15	No. 40 —Box, ...	Each, 25
No. 24 Malleable Iron Wrench, ...	Each, 15	No. 41½ Galvanized Iron Pinwheel, ...	Each, 45
Nos. 25 and 26—Hinge Hasp and Staple, ...	Per Set, 20		



REPAIRS FOR Nos. 11 and 12, WAYNE COMBINATION WASHING MACHINES.

No. 24—Wrench, Malleable, ...	Each, \$0 15	No. 46—Pinion, ...	Each, \$0 20
No. 42 Brew Handle, ...	Each, 20	No. 47—Lower Gear Plate, ...	Each, 20
No. 43 Transverse Rod and Arms, ...	Each, 25	No. 48 Upper Gear Plate, ...	Each, 20
No. 44 Gudgeon, ...	Each, 10	No. 49—Key, ...	Each, 05
No. 45—Rack Bar, Malleable, ...	Each, 30	No. 50—Post, ...	Each, 25

Note In Ordering Repairs for Washers be sure and specify Name of Washer and Number of Part as given in Illustration.

WRINGERS.



No. 30, WITTE'S PRIDE.

EXTRA QUALITY RUBBER ROLLS, SPIRAL PRESSURE SPRINGS,
COMBINATION IRON TUB CLAMPS, ROLLS WARRANTED
THREE YEARS FOR FAMILY USE.

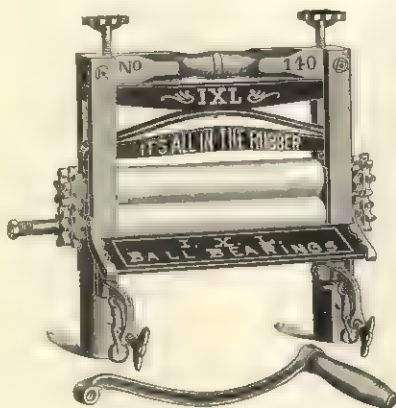
No. 30 - Witte's Pride, Rolls 10x1 1/4 inches,
Each, \$4 50

Average Weight Per Dozen 180 Pounds.
Packed One-half and One-quarter Dozen in a case.



COMBINATION CLAMP.

Used on Our Wringers for Fastening Wringers to Galvan-
ized Iron and Fibre Tubs, or Wood Tubs, which Do Not have
a Wringer Attachment.



No. 140, W. H. CO. "IXL."

BALL BEARINGS, GUIDE BOARD, STEEL SPRING, COMBINA-
TION IRON TUB CLAMPS, ROLLS WARRANTED
ONE YEAR.

No. 140 - W. H. Co. "IXL," Rolls 10x1 1/4 inches
Each, \$4 00

Average Weight Per Dozen 168 Pounds.

Packed One-half and One-quarter Dozen in a case.



No. 120, ALEXANDER.

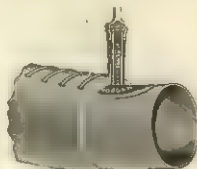
REGULAR BEARINGS, GUIDE BOARD, COMBINATION IRON
TUB CLAMPS, ROLLS WARRANTED
ONE YEAR.

No. 120 - Alexander, Rolls 10x1 1/4 inches, Each, \$3 00

Average Weight Per Dozen 168 Pounds.

BICYCLE TIRES.

MORGAN & WRIGHT.



DOUBLE TUBE.

No. 30—14 to 26 inches G. Juvenile,	Per Pair, \$7 20
No. 35—28x1½, 1½ inches Road,	" 8 50

M. & W. OUTER CASINGS.

No. 11—14 to 26 inches G. Juvenile	Each, \$2 60
No. 12—28x1½, 1½ inches Road,	" 3 00

M. & W. INNER TUBES.

No. 1—14 to 22 inches,	Per Dozen, \$13 20
No. 1 A—24 to 30 inches,	" 16 00
No. 2—24 to 30 inches,	" 14 00

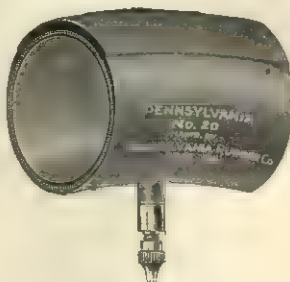
HARTFORD TIRES.



SINGLE TUBE.

No. 70—28x1½, 1½ inches,	Per Pair, \$10 00
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PENNSYLVANIA TIRES.



SINGLE TUBE.

RAISED TREAD.

No. 20 28x1½, 1½ inches,	Per Pair, \$9 00
No. 10 28x1½, 1½ inches,	" 7 50

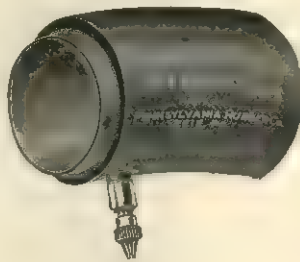
ERIE JUVENILE SINGLE TUBE TIRES.

No. 25—26x1½ inches,	Per Pair, \$5 00
No. 26 24x1½ inches,	" 5 00
No. 27—20x1½ inches,	" 4 70

VELVET SINGLE TUBE TIRES.

No. 35—28x1½, 1½ inches,	Per Pair, \$5 00
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ERIE TIRES.



DOUBLE TUBE.

ERIE BRAND.

No. 50—28x1½, 1½ inches,	Per Pair, \$5 50
No. 51—26x1½ inches,	" 5 50
No. 52—24x1½ inches,	" 5 50
No. 53—Erie Casings,	Each, 2 00

BICYCLE SUNDRIES.

TROXEL SADDLES.



SPRING BASE.

No. 100—The very latest, ... Each, \$2 20

ELYRIA SADDLES.



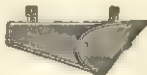
PADDED ROAD.

No. 12B—Loop Spring, Gents' Each, \$1 50
 No. 14B—Loop Spring, Ladies' " 1 50
 No. 4E—Plain Spring, Gents' " 1 10

TOOL BAGS.



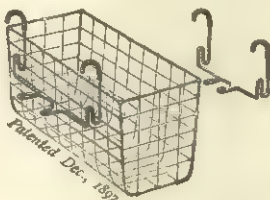
No. 1.



No. 3.

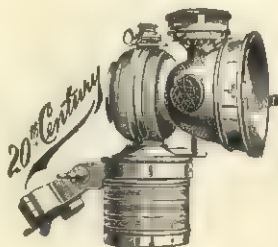
No. 1—Gents' Leather, ... Each, \$0 50
 No. 3—Ladies' Leather, ... " 50

PERFECTION BUNDLE CARRIERS



No. 1—Size 9x5x5 inches, ... Each, \$0 80
 No. 2—Size 12x7x6 inches, ... " 0 85
 No. 3—Size 15x8x7 inches, ... " 1 20

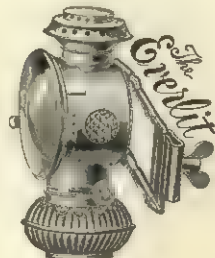
GAS LAMP.



20TH CENTURY.

No. 20—Burns Calcium Carbide, ... Each, \$4 00

OIL LAMP.



EVERLIT.

No. 30—Burns Lantern Oil Each, \$1 60

CARBIDE.

No. 21—Calcium Carbide, 2-pound Cans, ... Each, \$0 36

BICYCLE SUNDRIES.

BELLS.



No. 312B 2 inch, Electric Stroke,
Per Dozen . . . \$4 50



No. 443AP 2 1/2-inch, Push Button,
Flag Top, Per Dozen, \$8 00



No. 1 N-14-inch, Electric Stroke,
Per Dozen, . . . \$2 50

COASTERS.



No. 1 -For Front Forks . . . Per Dozen Pair, \$1 40

TROUSER GUARDS.



No. 1-Corrugated, Enameled, and Narrow,
Per Dozen Pair . . . \$0 30

No. 2-Corrugated, Enameled, Wide, Per Dozen Pair, 40

TOE CLIPS.



THIEM'S ADJUSTABLE.

No. 7 . . . Per Dozen Pair, \$2 40

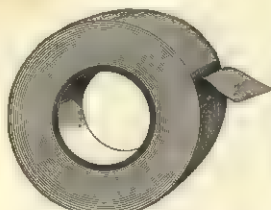
TOE CLIPS.



No. 10-Spring Steel . . . Per Dozen Pair, \$1 40

BICYCLE SUNDRIES.

TIRE TAPE.



No. 4—1 oz. Rolls, Per Pound, \$0 54
 No. 5—4 lb. Rolls, " 60

PATCHING RUBBER



No. 1 For Repairing Inner Tubes,
 Per Pound, . . . \$4 50

PLUGS.



STRING PLUGS.

No. 1—Small, . . Per Dozen, \$0 20
 No. 2—Medium, . . " 32
 No. 3—Large, . . " 44

REPAIR OUTFITS.



No. 2—For Double Tube Tires,
 Per Dozen, . . . \$2 50



No. 1—For Single Tube Tires
 Per Dozen, . . . \$3 00

HANDLE BAR BUFFERS.



No. 5—Spring Buffers,
 Per Dozen, . . . \$1 00

OIL CANS.



No. 110—Oval Oiler,
 Per Dozen, . . . \$0 80

LUBRICATING OIL.



No. 100—2 oz. Bottle, Per Doz., \$0 70

HANDLE BAR GRIPS.



CORK LINED.

Per Dozen Pair.
 No. 10—Nickel Tips, . . \$1 80
 No. 11—Black Tips, . . 1 80
 No. 12 Maroon Tips, . . 1 80

BICYCLE SUNDRIES.

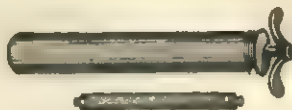
PUMPS.



FOOT PUMPS.

No. 2—12 $\frac{1}{2}$ inch Barrel, Cast Base . . . Each, \$0 60

PUMPS.



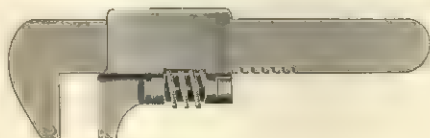
HAND PUMPS.

No. 1—With Connection . . . Per Dozen, \$2 00

HAND PUMP CONNECTIONS.

No. 11—Extra Connections, . . . Per Dozen, 80

WRENCHES.



SPRINGFIELD.

No. 4—Drop Forged, Nickel-Plated . . . Per Dozen, \$3 20

No. 7—Satin Finish " 2 40

RUBBER VALVE STEM.



No. 4—For Repairing Inner Tubes . . . Per Dozen, \$0 70

VALVES.



No. 6—Schrader Universal Valve,
Per Dozen, . . . \$1 35



No. 7—Schrader Shoe Valve
for Single Tube Tires,
Per Dozen . . . \$2 50



No. 8—Schrader Valves and
Stems Complete.
Per Dozen . . . \$2 25

BICYCLE SUNDRIES.

KELLY HANDLE BAR.

STEM SIZES, $\frac{1}{2}$, $\frac{3}{4}$ AND 1 INCH.

No. 1—Without Expander, ... Each, \$2 00

No. 2—With Expander, ... " 2 20

REGULAR ADJUSTABLE HANDLE BAR.

STEM SIZES $\frac{1}{2}$, $\frac{3}{4}$ AND 1 INCHES

No. 3—With Expander, ... Each \$1 30

CHAIN GRAPHITE.



RED CROSS.

No. 30— $\frac{1}{2}$ x $\frac{3}{4}$ inch Tin Foil, ... Per Dozen, \$0 30No. 31— $\frac{1}{2}$ x $\frac{3}{4}$ inch Tin Push Box, ... " 80

CEMENTS.



ANCHOR BRAND RUBBER CEMENT.

No. 20— $\frac{1}{2}$ x $\frac{3}{4}$ inch Tubes, ... Per Dozen, \$0 35No. 21— $\frac{1}{2}$ x $\frac{3}{4}$ inch Tubes, ... " 60No. 22— $\frac{1}{2}$ pint Cans, ... " 1 50

WOOD RIM CEMENT.

No. 23— $\frac{1}{2}$ x $\frac{3}{4}$ inch Tubes, ... Per Dozen, \$0 60No. 24— $\frac{1}{2}$ pint Cans, ... " 1 50

PLUGGING CEMENT.

No. 25— $\frac{1}{2}$ x $\frac{3}{4}$ inch Tubes, ... Per Dozen, \$0 50No. 26— $\frac{1}{2}$ x $\frac{3}{4}$ inch Tubes, ... " 85

JIFFOID PLUGGING SOLUTION FOR SMALL PUNCTURES

No. 27— $\frac{1}{2}$ x $\frac{3}{4}$ inch Tubes, ... Per Dozen, \$0 60No. 28— $\frac{1}{2}$ x $\frac{3}{4}$ inch Tubes, ... " 1 30

WOOD RIMS.



FAIRBANK'S ONE-PIECE RIMS, THE VERY BEST.

No. 10—28 inch Per Pair, \$1 20

JUVENILE RIMS.

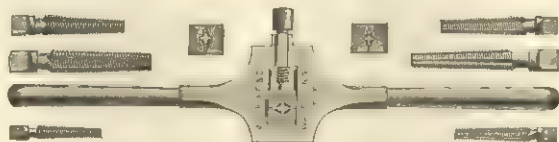
No. 15—26 inch, ... Per Pair, \$1 00

No. 15A—24 inch, ... " 1 00

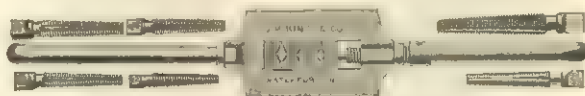
No. 15B—20 inch, ... " 1 00

The above rims are furnished in either plain natural finish or stained, drilled or undrilled. In ordering drilled state the number of holes wanted.

BLACKSMITHS' STOCKS AND DIES.



- No. 5 —Cuts $1\frac{1}{2}$ inch to $\frac{3}{4}$ inch, Right Hand, 8 and 9 Threads to inch; Cuts $1\frac{1}{2}$ inch to $\frac{3}{4}$ inch, Left Hand, 8 and 9 Threads to inch; 8 Taps and 4 Pairs of Dies, . . . Each, \$35 00
- No. 5½ —Cuts $1\frac{1}{2}$ inch to $\frac{3}{4}$ inch, Right Hand, 8, 7, 8 and 9 Threads to inch; 8 Taps and 4 Pairs of Dies, . . . Each, 35 00
- No. 7 —Cuts $1\frac{1}{2}$ inch to $\frac{3}{4}$ inch, Right Hand, 8 and 10 Threads to inch; Cuts $1\frac{1}{2}$ inch to $\frac{3}{4}$ inch, Left Hand, 8 Threads to inch; 6 Taps and 3 Pairs of Dies, . . . Each, 12 00
- No. 9 —Cuts $1\frac{1}{2}$ inch to $\frac{3}{4}$ inch, Right Hand, 8, 10 and 12 Threads to inch; 6 Taps and 3 Pairs of Dies, . . . Each, 12 00
- No. 17 —Cuts 1 inch to $\frac{3}{4}$ inch, Right Hand, 9 and 12 Threads to inch; Cuts 1 inch to $\frac{3}{4}$ inch, Left Hand, 9 Threads to inch; 6 Taps and 3 Pairs of Dies, . . . Each, 9 00
- No. 19 —Cuts 1 inch to $\frac{3}{4}$ inch, Right Hand, 9, 12 and 14 Threads to inch; 6 Taps and 3 Pairs of Dies, . . . Each, 9 00
- No. 25 —Cuts $\frac{3}{4}$ inch to $\frac{3}{8}$ inch, Right Hand, 10 and 16 Threads to inch; Cuts $\frac{3}{4}$ inch to $\frac{3}{8}$ inch, Left Hand, 10 Threads to inch; 6 Taps and 3 Pairs of Dies, . . . Each, 6 50
- No. 27 —Cuts $\frac{3}{4}$ inch to $\frac{3}{8}$ inch, Right Hand, 10, 12 and 16 Threads to inch; 6 Taps and 3 Pairs of Dies, . . . Each, 6 50
- No. 45 —Cuts $\frac{1}{2}$ inch to $\frac{3}{8}$ inch, Right Hand, 12 and 16 Threads to inch; Cuts $\frac{1}{2}$ inch to $\frac{3}{8}$ inch, Left Hand, 12 Threads to inch; 6 Taps and 3 Pairs of Dies, . . . Each, 5 50
- No. 47 —Cuts $\frac{3}{4}$ inch to $\frac{1}{2}$ inch, Right Hand, 12, 14 and 18 Threads to inch; 6 Taps and 3 Pairs of Dies, . . . Each, 5 50
- No. 49 —Cuts $\frac{3}{4}$ inch to $\frac{1}{2}$ inch, Right Hand, 14 and 18 Threads to inch; Cuts $\frac{1}{2}$ inch to $\frac{3}{8}$ inch, Left Hand, 14 Threads to inch; 6 Taps and 3 Pairs of Dies, . . . Each, 4 50
- No. 51 —Cuts $\frac{1}{2}$ inch to $\frac{3}{8}$ inch, Right Hand, 14, 18 and 22 Threads to inch; 6 Taps and 3 Pairs of Dies, . . . Each, 4 50
- No. 60 —Cuts $\frac{3}{4}$ inch to $\frac{1}{2}$ inch, Right Hand, 10, 12, 14 and 18 Threads to inch; 6 Taps and 4 Pairs of Dies, . . . Each, 6 50



- No. 21—Cuts 1 inch to $\frac{1}{2}$ inch, Right Hand, 9 and 12 Threads to inch; Cuts 1 inch to $\frac{3}{4}$ inch, Left Hand, 9 Threads to inch; 4 Taps and 3 Sets of Dies, . . . Each, 30 00
- No. 23—Cuts 1 inch to $\frac{3}{4}$ inch, Right Hand, 8, 10 and 14 Threads to inch; 3 Taps and 3 Sets of Dies, . . . Each, 5 00
- No. 32—Cuts $\frac{3}{4}$ inch to $\frac{3}{8}$ inch, Right Hand, 10 and 14 Threads to inch; Cuts $\frac{3}{4}$ inch to $\frac{3}{8}$ inch, Left Hand, 10 and 14 Threads to inch; 4 Taps and 4 Sets of Dies, . . . Each, 5 00
- No. 33—Cuts $\frac{3}{4}$ inch to $\frac{3}{8}$ inch, Right Hand, 10 Threads to inch; Cuts $\frac{3}{4}$ inch to $\frac{3}{8}$ inch, Left Hand, 10 Threads to inch; 2 Taps and 3 Sets of Dies, . . . Each, 4 50
- No. 34—Cuts $\frac{3}{4}$ inch to $\frac{3}{8}$ inch, Right Hand, 10, 12 and 16 Threads to inch; 3 Taps and 3 Sets of Dies, . . . Each, 4 50
- No. 37—Cuts $\frac{1}{2}$ inch to $\frac{3}{8}$ inch, Right Hand, 14, 18 and 22 Threads to inch; 6 Taps and 3 Sets of Dies, . . . Each, 4 25
- No. 38—Cuts $\frac{1}{2}$ inch to $\frac{3}{8}$ inch, Right Hand, 12 and 18 Threads to inch; Cuts $\frac{1}{2}$ inch to $\frac{3}{8}$ inch, Left Hand, 12 Threads to inch; 6 Taps and 3 Sets of Dies, . . . Each, 4 50
- No. 41—Cuts $\frac{1}{2}$ inch to $\frac{3}{8}$ inch, Right Hand, 16, 20 and 24 Threads to inch; 6 Taps and 3 Sets of Dies, . . . Each, 3 25
- No. 42—Cuts $\frac{1}{2}$ inch to $\frac{3}{8}$ inch, Right Hand, 14 and 20 Threads to inch; Cuts $\frac{1}{2}$ inch to $\frac{3}{8}$ inch, Left Hand, 14 Threads to inch; 6 Taps and 3 Sets of Dies, . . . Each, 3 50
- No. 53—Cuts $\frac{1}{2}$ inch to $\frac{1}{8}$ inch, Right Hand, 16, 20, 24 and 32 Threads to inch; 4 Taps and 4 Sets of Dies, . . . Each, 2 75
- No. 55—Cuts $\frac{1}{2}$ inch to $\frac{1}{8}$ inch, Right Hand, 18, 24 and 32 Threads to inch; 4 Taps and 8 Sets of Dies, . . . Each, 2 50

All the above packed One in a wood box.

The image shows four sequential cross-sections of a bolted joint, illustrating the stages of fatigue crack growth. From left to right: 1. A crack initiates at the edge of the hole. 2. The crack propagates along the edge of the hole. 3. The crack extends further into the material, past the hole. 4. The crack reaches the bolt hole, leading to a complete fracture of the material.

NO. 66 FLOOR.

α	$\mathbb{E}(\mathcal{S}_\alpha)$
0	30
0.1	30
0.2	35
0.3	40
0.4	40
0.5	50
0.6	50
0.7	67
0.8	100
0.9	127
1	177
2	300

A diagram of a sawtooth wave. The wave consists of five repeating triangular peaks. The angle between the two sides of one peak is labeled as 60° .

Diameter of Tap.	1/4	5/16	3/8	7/16	1/2	5/8	3/4	7/8	1	1 1/8	1 1/4	1 5/8	1 1/2	1 3/4	1	1	2
No. Threads to Inch.	20	18	16	14	12	12	11	10	9	8	7	6	6	5 1/2	5	4	4

GREEN RIVER SCREW PLATES.



Fig. 100

Fig. 100—Set No. 1, 5 sizes, $\frac{1}{16}$, $\frac{1}{8}$, $\frac{3}{16}$, $\frac{1}{4}$, $\frac{5}{16}$ -inch Taps, Dies and Guides, Diameter of Dies in this set $1\frac{1}{16}$ inches, with both **Stock and Brace Holder** for Dies, Stock 10 inches long, complete in case, \$8 75



Fig. 103.

Fig. 103—Set No. $1\frac{1}{2}$, 7 sizes, $\frac{1}{16}$, $\frac{1}{8}$, $\frac{3}{16}$, $\frac{1}{4}$, $\frac{5}{16}$, $\frac{3}{8}$, $\frac{7}{16}$ -inch Taps, Dies and Guides, Stock 22 inches long, Diameter of Dies in this set $2\frac{1}{16}$ inches, complete in case, \$13 00



Fig. 105

Fig. 105—Set No. 2, 7 sizes, $\frac{1}{8}$, $\frac{3}{16}$, $\frac{1}{4}$, $\frac{5}{16}$, $\frac{3}{8}$, $\frac{7}{16}$, $\frac{1}{2}$ -inch Taps, Dies and Guides, Stock 23 inches long, Diameter of Dies in this set $2\frac{1}{8}$ inches, complete in case, \$15 25



Fig. 107.

Fig. 107—Set No. 3, 5 sizes, $\frac{1}{8}$, $\frac{3}{16}$, $\frac{1}{4}$, $\frac{5}{16}$, $\frac{3}{8}$ -inch Taps, Dies and Guides, Stock 29 inches long, Diameter of Dies in this set $2\frac{3}{4}$ inches, complete in case, \$17 00



Fig. 109.

Fig. 109—Set No. 4, 7 sizes, $\frac{3}{16}$, $\frac{1}{4}$, $\frac{5}{16}$, $\frac{3}{8}$, $\frac{7}{16}$, $\frac{1}{2}$, $\frac{5}{8}$ -inch Taps, Dies and Guides, Stock 29 inches long, Diameter of Dies in this set $2\frac{1}{4}$ inches, complete in case, \$20 00



Fig. 111.

Fig. 111—Set No. 5, 9 sizes, $\frac{1}{8}$, $\frac{3}{16}$, $\frac{1}{4}$, $\frac{5}{16}$, $\frac{3}{8}$, $\frac{7}{16}$, $\frac{1}{2}$, $\frac{5}{8}$, $\frac{3}{4}$ -inch Taps, Dies and Guides, Stock 29 inches long, Diameter of Dies in this set $2\frac{3}{4}$ inches, complete in case, \$23 00



Fig. 113

Fig. 113—Set No. 6, 7 sizes, $\frac{1}{4}$, $\frac{5}{16}$, $\frac{3}{8}$, $\frac{7}{16}$, $\frac{1}{2}$, $\frac{5}{8}$, $\frac{3}{4}$ -inch Taps, Dies and Guides, Stock 35 inches long, Diameter of Dies in this set $2\frac{3}{4}$ inches, complete in case, \$26 00



Fig. 114

Fig. 114—Set No. 7, 9 sizes, $\frac{3}{8}$, $\frac{7}{16}$, $\frac{1}{2}$, $\frac{5}{8}$, $\frac{3}{4}$, $\frac{7}{8}$, 1, $1\frac{1}{8}$ -inch Taps, Dies and Guides, Stock 35 inches long, Diameter of Dies in this set $2\frac{3}{4}$ inches, complete in case, \$30 00



Fig. 115

Fig. 115—Set No. 8, 11 sizes, $\frac{1}{2}$, $\frac{5}{8}$, $\frac{3}{4}$, $\frac{7}{8}$, 1, $1\frac{1}{8}$, $1\frac{1}{4}$, $1\frac{1}{2}$ -inch Taps, Dies and Guides, Stock 35 inches long, Diameter of Dies in this set $2\frac{3}{4}$ inches, complete in case, \$41 00

The above Sets are $\frac{1}{16}$ Oversize, V Thread.

GREEN RIVER SCREW PLATES.



Fig. 117

Fig. 117—Set No. 13, **9 sizes**, $\frac{1}{16}$, $\frac{1}{8}$, $\frac{1}{4}$, $\frac{3}{8}$, $\frac{1}{2}$, $\frac{5}{8}$, $\frac{3}{4}$, $\frac{7}{8}$, 1-inch Taps, Dies and Guides. **Two Stocks**, **one 22 inches** long, and **one 29 inches** long. Diameter of Dies $\frac{1}{2}$ inch and under, $2\frac{9}{16}$ inches; $\frac{3}{8}$ inch and over, $2\frac{1}{4}$ inches, complete in case. \$25 00



Fig. 119

Fig. 119—Set No. 16, **11 sizes**, $\frac{1}{16}$, $\frac{1}{8}$, $\frac{3}{16}$, $\frac{1}{4}$, $\frac{5}{16}$, $\frac{3}{8}$, $\frac{7}{8}$, 1, $1\frac{1}{4}$, $1\frac{1}{2}$ -inch Taps, Dies and Guides. **Two Stocks**, **one 22 inches** long, and **one 35 inches** long. Diameter of Dies $\frac{1}{2}$ inch and under, $2\frac{5}{16}$ inches; $\frac{3}{8}$ inch and over, $2\frac{3}{4}$ inches, complete in case. \$30 00



Fig. 116.

Fig. 116—Set No. 9, **6 sizes**, $\frac{1}{8}$, 1, $1\frac{1}{8}$, $1\frac{1}{4}$, $1\frac{1}{2}$, $1\frac{3}{4}$ -inch Taps, Dies and Guides, **one Stock** 33 inches long. Diameter of Dies $3\frac{1}{4}$ inches, complete in case. \$40 00

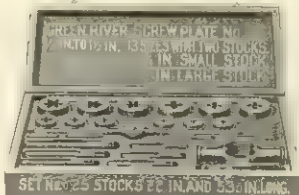
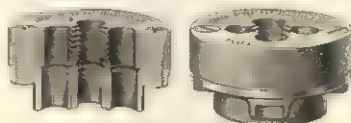


Fig. 120.

Fig. 120—Set No. 25, **13 sizes**, $\frac{1}{16}$, $\frac{1}{8}$, $\frac{3}{16}$, $\frac{1}{4}$, $\frac{5}{16}$, $\frac{3}{8}$, $\frac{7}{8}$, 1, $1\frac{1}{8}$, $1\frac{1}{4}$, $1\frac{1}{2}$, $1\frac{3}{4}$ -inch Taps, Dies and Guides. **Two Stocks**, **one 22 inches** long, and **one 53 inches** long. Diameter of Dies $3\frac{1}{4}$ inches and under, $2\frac{7}{16}$ inches; $\frac{1}{2}$ inches and over, $3\frac{1}{16}$ inches, complete in case. \$53 00

The above Sets are $\frac{1}{16}$ Oversize, V Thread.

DIES, GUIDES AND TAPS FOR GREEN RIVER SETS.



Cross Section of Die and Guide.

Die and Guide complete

Dies, without Guides,	{ Inchs., Each,	1/16	1/8	3/16	7/16	1/2	5/8	3/4	7/8	1	1 1/8	1 1/4
		\$1.25	1.25	1.50	1.50	1.60	1.75	2.00	2.50	3.00	4.00	5.00
Guides,		.25	.25	.25	.25	.25	.25	.25	.25	.25	.25	.25
Taps,	{ Inchs., Each,	3/16	1/2	5/8	3/4	7/8	1	1 1/8	1 1/4	1 1/2	1 3/4	2
		\$0.35	.45	.50	.55	.60	.70	.80	.90	1.20	1.50	2.00

In ordering Dies and Guides, care should be taken to give Number, Letter or Figure of Set for which Parts are wanted.

LIGHTNING SCREW PLATES.



Fig. 150.

Fig. 150 - Set No. 0, 5 sizes, $\frac{1}{16}$, $\frac{1}{8}$, $\frac{1}{4}$, $\frac{3}{8}$, $\frac{1}{2}$ -inch Taps, Dies and Guides, Stock 6 inches long, with Tap Wrench (fitting in stock) complete in case. \$5 50



Fig. 152.

Fig. 152 - Set No. 0, 7 sizes, $\frac{1}{16}$, $\frac{1}{8}$, $\frac{1}{4}$, $\frac{3}{8}$, $\frac{1}{2}$, $\frac{5}{8}$, $\frac{3}{4}$ -inch Taps, Dies and Guides, Stock 6 inches long, with Tap Wrench (fitting in stock), complete in case. \$7 00



Fig. 180.

Fig. 180 - Set No. A, 5 sizes, $\frac{1}{16}$, $\frac{1}{8}$, $\frac{1}{4}$, $\frac{3}{8}$, $\frac{1}{2}$ -inch Taps, Dies and Guides, Stock 10 inches long, complete in case. \$8 00

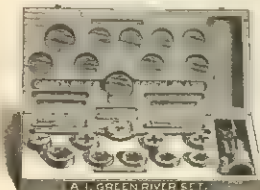


Fig. 186.

Fig. 186 - Set No. A1, 5 sizes, $\frac{1}{16}$, $\frac{1}{8}$, $\frac{1}{4}$, $\frac{3}{8}$, $\frac{1}{2}$ -inch Taps, Dies and Guides, Stock 10 inches long, Bit Brace Holder and Nut Wrenches, Diameter of Dies in this set, $1\frac{1}{16}$ inch, complete in case. \$10 00



Fig. 190.

Fig. 190 - Set No. AA, 6 sizes, $\frac{3}{16}$, $\frac{1}{4}$, $\frac{5}{16}$, $\frac{3}{8}$, $\frac{7}{16}$, $\frac{1}{2}$ -inch Taps, Dies and Collets, Stock 18 inches long, Diameter of Collets in this set $2\frac{3}{16}$ inches, complete in case. \$13 50



Fig. 160.

Fig. 160 - Set No. 0, 14 sizes, $\frac{1}{16}$, $\frac{1}{8}$, $\frac{1}{4}$, $\frac{3}{8}$, $\frac{1}{2}$, $\frac{5}{8}$, $\frac{3}{4}$, $\frac{7}{8}$, 1, $1\frac{1}{8}$, $1\frac{1}{4}$, $1\frac{3}{4}$, 2-inch Taps, Dies and Guides, Bit Brace Holder, Holder for Machine, with Stock, Tap Wrench (fitting in stock), complete in case. \$15 00



Fig. 192.

Fig. 192 - Set No. B, 7 sizes, $\frac{1}{16}$, $\frac{1}{8}$, $\frac{1}{4}$, $\frac{3}{8}$, $\frac{1}{2}$, $\frac{5}{8}$, $\frac{3}{4}$ -inch Taps, Dies and Collets, Stock 23 inches long, Diameter of Collets in this set $2\frac{3}{4}$ inches, complete in case. \$16 00



Fig. 196.

Fig. 196 - Set No. C, 7 sizes, $\frac{1}{8}$, $\frac{1}{4}$, $\frac{3}{8}$, $\frac{1}{2}$, $\frac{5}{8}$, $\frac{3}{4}$, $\frac{7}{8}$ -inch Taps, Dies and Collets, Stock 24 inches long, Diameter of Collets in this set $2\frac{3}{4}$ inches, complete in case. \$22 00



Fig. 198.

Fig. 198 - Set No. C, 9 sizes, $\frac{1}{8}$, $\frac{1}{4}$, $\frac{3}{8}$, $\frac{1}{2}$, $\frac{5}{8}$, $\frac{3}{4}$, $\frac{7}{8}$, 1, $1\frac{1}{8}$ -inch Taps, Dies and Collets, Stock 29 inches long, Diameter of Collets in this set $2\frac{3}{4}$ inches, complete in case. \$25 50



Fig. 200.

Fig. 200 - Set No. D, 8 sizes, $\frac{3}{8}$, $\frac{1}{2}$, $\frac{5}{8}$, $\frac{3}{4}$, $\frac{7}{8}$, 1, $1\frac{1}{8}$, $1\frac{1}{4}$ -inch Taps, Dies and Collets, Stock 33 inches long, Diameter of Collets in this set $3\frac{1}{4}$ inches, complete in case. \$45 00

Above Sets are $\frac{1}{16}$ Oversize, V Thread.

LIGHTNING SCREW PLATES.

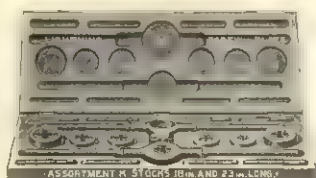


Fig. 201.

Fig. 201—Set No. K, 7 sizes, $\frac{1}{4}$, $\frac{5}{16}$, $\frac{3}{8}$, $\frac{7}{16}$, $\frac{1}{2}$, $\frac{5}{8}$, $\frac{3}{4}$ inch Taps, Dies and Collets, two Stocks, one 18 inches long, and one 29 inches long. Diameter of Collet $\frac{7}{16}$ inch and under, $\frac{3}{8}$ inches, $\frac{1}{2}$ inch and over, $\frac{5}{8}$ inches, complete in case. \$18.00

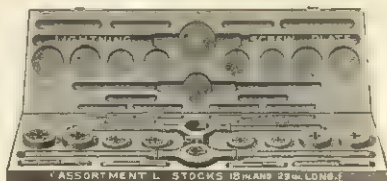


Fig. 203.

Fig. 203—Set No. L, 9 sizes, $\frac{1}{4}$, $\frac{5}{16}$, $\frac{3}{8}$, $\frac{7}{16}$, $\frac{1}{2}$, $\frac{5}{8}$, $\frac{3}{4}$, $\frac{7}{8}$, 1 inch Taps, Dies and Collets, two Stocks, one 18 inches long and one 29 inches long. Diameter of Collets $\frac{7}{16}$ inch and under, $\frac{3}{8}$ inches, $\frac{1}{2}$ inch and over, $\frac{5}{8}$ inches, complete in case. \$27.50

FULL MOUNTED LIGHTNING SCREW PLATES.



Fig. 216.

Fig. 216—One Stock to each Die, 6 sizes, $\frac{1}{4}$, $\frac{5}{16}$, $\frac{3}{8}$, $\frac{7}{16}$, $\frac{1}{2}$, $\frac{5}{8}$ inch Taps, Dies and Stocks, complete in case. \$12.00



Fig. 222.

Fig. 222—Set No. B, one Stock to each Die, 7 sizes, $\frac{1}{4}$, $\frac{5}{16}$, $\frac{3}{8}$, $\frac{7}{16}$, $\frac{1}{2}$, $\frac{5}{8}$, $\frac{3}{4}$ inch Taps, Dies and Stocks, complete in case. \$16.00

LIGHTNING SCREW PLATES FOR PIPE.

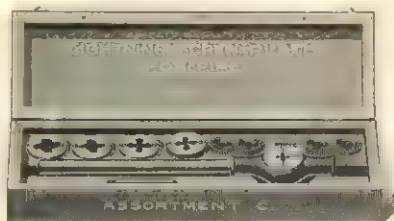


Fig. 250—Set No. C, 5 sizes, $\frac{1}{4}$, $\frac{3}{8}$, $\frac{1}{2}$, $\frac{3}{4}$, 1 inch Dies (right or left) and Guides, Stock 35 inches long; Dies and Guide Plates always ready for use like Solid Dies complete in case. \$12.00



Fig. 252.

Fig. 252—Sets Nos. C and D Combined, 8 sizes, $\frac{1}{4}$, $\frac{3}{8}$, $\frac{1}{2}$, $\frac{3}{4}$, 1, $1\frac{1}{4}$, $1\frac{1}{2}$, 2 inch Dies (right or left) and Guides, two Stocks (large Stock with Leader Screw), complete in case. \$32.00



Fig. 263.

Fig. 263—Full Mounted, 6 sizes, $\frac{1}{4}$, $\frac{5}{16}$, $\frac{3}{8}$, $\frac{7}{16}$, $\frac{1}{2}$, $\frac{5}{8}$ inch Dies, a Stock for each Die, 6 Stocks and 6 Dies complete in case. \$16.25



LEAD PENCILS.



O. H. WITTE'S INDESTRUCTIBLE.

EACH PENCIL IS FITTED WITH NICKEL PLATED POINT PROTECTOR AND PENCIL LENGTHENER,
WITH INSERTED RUBBER

No. 302—O. H. Witte's Indestructible, Grade No. 2. Hexagon Shape, Maroon Finish, Stamped in Gold, Per Gross, \$12 00

No. 303—O. H. Witte's Indestructible, Grade No. 3. Hexagon Shape, Maroon Finish, Stamped in Gold, Per Gross, 12 0

Packed One Dozen in a package, One-half Gross in a box.



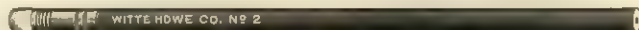
O. H. WITTE, TRILATERAL.

No. 102—O. H. Witte, Trilateral, Grade No. 2, Maroon Finish, Stamped in Gold, ... Per Gross, \$10 00

No. 103—O. H. Witte, Trilateral, Grade No. 3, Maroon Finish, Stamped in Gold, ... Per Gross, 10 00

Packed One Dozen in patent package, One-half Gross in a box.

O. H. Witte Trilateral is Full Length, High Grade Pencil. Its Triangular shape makes it Exceedingly Popular, as it Fits the Fingers, does not Tire the Hand from continuous use nor Roll when laid on Slanting Desk.



No. 2, WITTE HARDWARE CO.

No. 2—Witte Hardware Co., Round Shape, Satin Finish, Stamped in Gold, Nickel Tips and Inserted Rubber,

Per Gross, \$7 00

Packed One Dozen in a package, One-half Gross in a box.



DIXON'S ROUND OFFICE.

No. 152—Round Shape, Satin Finish, SM, Soft Medium, ... Per Gross, \$8 00

No. 153—Round Shape, Satin Finish, M, Medium, ... Per Gross, 6 00

Packed One Dozen in a package, One-half Gross in a box.



LEAD PENCILS.



DIXON'S HEXAGON OFFICE

- No. 116—Hexagon Shape, Maroon Finish, SM, Soft Medium, ... Per Gross, \$8 35
 No. 117—Hexagon Shape, M, Medium, ... Per Gross, 8 35
 Packed One Dozen in a package, One-half Gross in a box.



No. 1160, DIXON'S DAINTY.

- No. 1160—Dixon's Dainty, Tablet Size, Hexagon Shape, Tapered, Maroon Finish, Gold Stamp, Nickel Tip and Rubber, ... Per Gross, \$0 00
 Packed One Dozen in a box, Six boxes in a carton.



No. 600, VAN DYKE.

- No. 600—Van Dyke, Hexagon, Grade HB, Extra Fine Gray Polish, Gold Stamp, Selected Red Cedar, . . Per Gross, \$16 00
 Packed One-half Dozen in a box, Six boxes in a carton.



No. 734, COPYING PENCIL.

- No. 734—Copying, Purple Lead, Purple Polish, Round, Gold Stamp, ... Per Gross, \$4 00
 Packed One Dozen in a package, One-half Gross in a box.



ROUND GILT.

- | | | | | |
|---|--------|------|------|------|
| Round Gilt—Black Polish, Gold Stamp, { Grades, Nos. | 1 | 2 | 3 | 4 |
| Per Gross, ... | \$4.80 | 4.80 | 4.80 | 4.80 |
- Packed One Dozen in a package, One-quarter Gross in a box.



HEXAGON GILT.

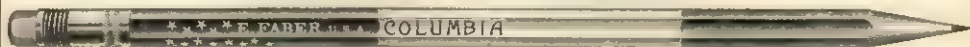
- | | | | | |
|--|--------|------|------|------|
| Hexagon Gilt—Rosewood Polish, Gold Stamp, { Grades, Nos. | 1 | 2 | 3 | 4 |
| Per Gross, ... | \$7.20 | 7.20 | 7.20 | 7.20 |
- Packed One Dozen in a package, One-quarter Gross in a box.

LEAD PENCILS.



No. 482, MONGOL.

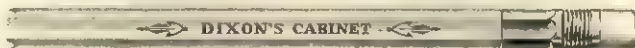
No. 482—Mongol, Hexagon Shape, Extra Fine Bright Yellow Polish, Gold Stamp, Grades Nos. 2 and 3, Gilt Tip and Rubber, ... Per Gross, \$8 40
Packed One Dozen in a box, One-half Dozen boxes in a carton.



Cut Shows Full Size

No. 485.

No. 485 Columbia, Hexagon Shape, Red, White and Blue Polish, Silver Stamp, Grade No. 2, Nickel Tip, Rubber Inserted, ... Per Gross, \$4 50
Packed One Dozen in a package, One-half Gross in a box.



No. 722.

No. 722 Dixon's Cabinet, Hexagon Shape, Satin Finish, Nickel and Rubber Tips. Per Gross, \$4 50



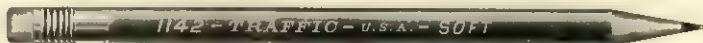
No. 720.

No. 720 Dixon's Cabinet, Round Shape, Satin Finish, Nickel and Rubber Tips, ... Per Gross, \$3 75
Packed One Dozen in a package, One-half Gross in a box.



No. 2842.

No. 2842—Imperial, Round Shape, Maroon Polish, Silver Stamp, Rubber Inserted, Nickel Tip, Grade No. 2, Per Gross, \$2 75
Packed One Dozen in a package, One-half Gross in a box.



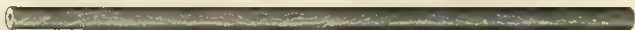
No. 1142.

No. 1142—Traffic, Grade No. 2, Round Shape, Red Polish, Silver Stamp, Nickel Tip with Rubber, ... Per Gross, \$2 00
Packed One Dozen in a package, One-half Gross in a box.



No. 268.

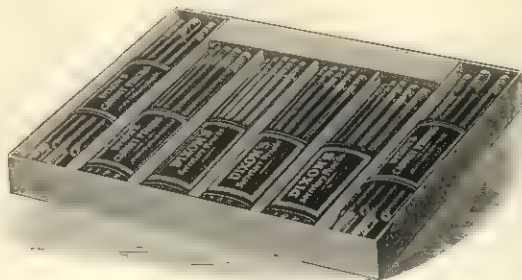
No. 268 Artisan, Polished Cedar, Round Shape, Inserted Rubber Plug. Per Gross, \$1 35
Packed One Dozen in a package, One Gross in a box.



No. D.

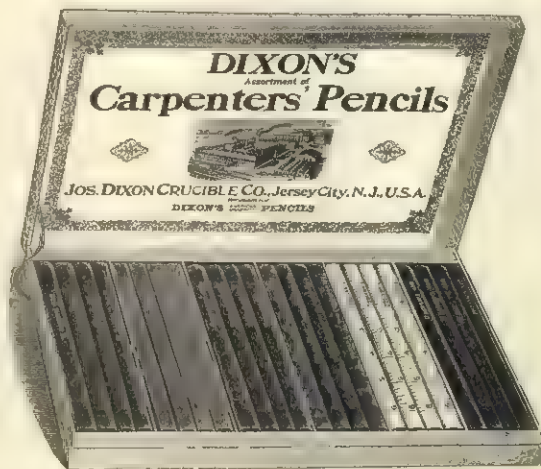
No. D —Round Shape, Plain Cedar, ... Per Gross, \$0 75
No. DH—Hexagon Shape, Plain Cedar, ... Per Gross, 1 00
Packed One Dozen in a package, One Gross in a box.

LEAD PENCIL ASSORTMENTS.



LEAD PENCIL ASSORTMENT.

No. 431—Assortment of a Half-gross of Lead Pencils, Medium Grade, Consisting of One Dozen Each of Six Kinds, Round and Hexagon Shape, Finished in Maroon, White, Cedar, Mottled and Satin Finish, All with Nickel and Rubber Tips, ... Per Assortment, \$3 00



CARPENTERS' PENCIL ASSORTMENT.

No. 429 Dixon's Carpenters' Pencil Assortments, Containing Six Dozen 7-inch Carpenters' Pencils, Assorted in a Neat, Hinge-top, Pasteboard Box, Containing the following Assortment of Styles: Two Dozen 7-inch Oval, Cedar Polished; One Dozen 7-inch Oval, White Wood, with 6-inch Rule; One Dozen 7-inch Oval, Mottled Finish, One Dozen 7-inch Beveled Edge, Satin Finish, One Dozen 7-inch Oval, Red Finish, Per Assortment, \$3 00

CARPENTERS' PENCILS.



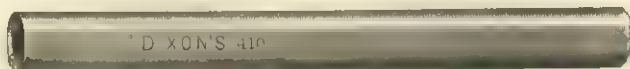
WITTE'S PRIDE.

Witte's Pride—7-inch, Bevel Shape, Maroon Finish, Edge Finished in Black, Aluminum Stamp, Extra Fine Quality of Lead, ... Per Gross, \$8 50
Packed One Dozen in a package, One-half Gross in a box.



No. 514.

No. 514—7-inch, White Wood, Natural Color, with 6-inch Rule, Stamped in Blue Ink, Oval Shape, . . . Per Gross, \$3 85
No. 515—9-inch, White Wood, Natural Color, with 6-inch Rule, Stamped in Blue Ink, Oval Shape, . . . Per Gross, 3 50
No. 516—12-inch, White Wood, Natural Color, with 6 inch Rule, Stamped in Blue Ink, Oval Shape, . . . Per Gross, 5 60
Packed One Dozen in a package, One-half Gross in a box.



No. 410.

No. 410—7-inch, Polished Cedar, Blind Stamp, Oval Shape, ... Per Gross, \$3 50
No. 411—9-inch, Polished Cedar, Blind Stamp, Oval Shape, ... Per Gross, 4 45
No. 412—12-inch, Polished Cedar, Blind Stamp, Oval Shape, ... Per Gross, 6 00
Packed One Dozen in a package, One-half Gross in a box.



No. 538, DIXON'S FRAMERS.

No. 538—7-inch, Dixon's Framers, Best Grade Hard Lead, Maroon Finish, Bevel Edges, Gold Stamp, . . . Per Gross, \$7 25
No. 539—9-inch, Dixon's Framers, Best Grade Hard Lead, Maroon Finish, Bevel Edges, Gold Stamp, . . . Per Gross, 8 75
No. 540—12-inch, Dixon's Framers, Best Grade Hard Lead, Maroon Finish, Bevel Edges, Gold Stamp, . . . Per Gross, 11 65
No. 511—7-inch, Beveled, Polished Cedar, Gold Stamp, Medium Hard Lead, ... Per Gross, 6 65
No. 512—9-inch, Beveled, Polished Cedar, Gold Stamp, Medium Hard Lead, ... Per Gross, 8 35
No. 513—12-inch, Beveled, Polished Cedar, Gold Stamp, Medium Hard Lead, ... Per Gross, 10 80
Packed One Dozen in a package, One-half Gross in a box.

COLORED LEAD PENCILS.



COLORED LEAD PENCIL.

THESE PENCILS ARE 7 INCHES LONG AND STAMPED IN GOLD.

No. 810—Excelstor, Round Shape, Blue	Lead and Blue Finish.	Per Gross, \$6 75
No. 811—Oriole, Round Shape, Red	Lead and Red Finish.	Per Gross, 8 75
No. 809—Emerald, Round Shape, Green	Lead and Green Finish.	Per Gross, 8 75
No. 349—Dixon's Best, Red	Lead and Red Finish.	Per Gross, 10 00
No. 350—Dixon's Best, Blue	Lead and Blue Finish.	Per Gross, 10 00
No. 354—Dixon's Best, Green	Lead and Green Finish.	Per Gross, 10 00

Packed One Dozen in a package, One-half Gross in a box.

LUMBER CRAYONS.



No. 361—Dixon's Black, Medium Soft, $\frac{3}{4}$ inches long, $\frac{1}{2}$ inch in diameter, Hexagon Shape, Japanned Finish.	Per Gross, \$9 00
No. 362—Dixon's Black, Hard, $\frac{3}{4}$ inches long, $\frac{1}{2}$ inch in diameter, Hexagon Shape, Japanned Finish.	Per Gross, 9 00
No. 365 Dixon's Black, Extra Soft, for Green Lumber, $\frac{3}{4}$ inches long, $\frac{1}{2}$ inch in diameter, Hexagon Shape, Japanned Finish.	Per Gross, 9 00
No. 520 Dixon's Red, $\frac{3}{4}$ inches long, $\frac{1}{2}$ inch in diameter, Hexagon Shape, Paper Covered.	Per Gross, 12 00
No. 521—Dixon's Blue, $\frac{3}{4}$ inches long, $\frac{1}{2}$ inch in diameter, Hexagon Shape, Paper Covered.	Per Gross, 12 00
No. 522 Dixon's Green, $\frac{3}{4}$ inches long, $\frac{1}{2}$ inch in diameter, Hexagon Shape, Paper Covered.	Per Gross, 12 00

Packed One Dozen in a package, One-half Gross in a box.



No. 524—Dixon's Metal Workers' Crayon, Sawed Out of Solid Soapstone. Flat Shape, Chisel Point.	Per Gross, \$4 25
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Packed One Dozen in a package, One-half Gross in a box.

SLATE PENCILS.



No. 15—Slate Pencils, 7 inches long, Plain Round.	Per 100, \$0 75
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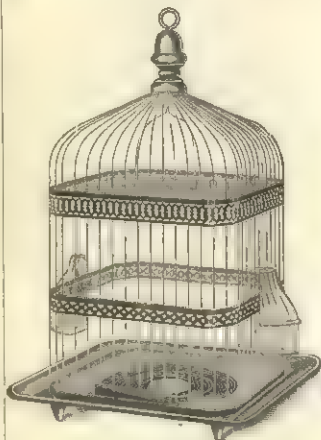
Packed 100 in a box.

No. 700—Slate Pencil Assortment, Contains Six Dozen Pencils, Slate incased in Cedar, Polished in Six Different Colors and Pointed.	Per Assortment, \$
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Packed in a hinged-cover box.

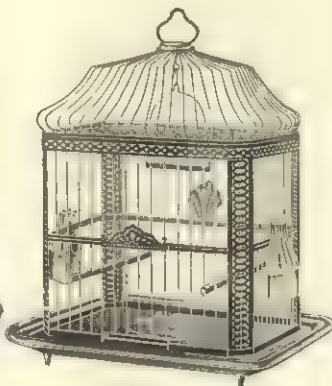
JAPANNED BIRD CAGES. THE W. H. CO. "IXL" ASSORTMENT.

Contains Six Cages.



No. 150.

No. 150—Fancy Square, $12\frac{1}{2} \times 9\frac{1}{2}$ inches, Height 18 $\frac{1}{4}$ inches, Per Dozen, \$15 00



No. 101.

No. 101—Fancy Oblong Square, $11 \times 7\frac{3}{4}$ inches, Height 17 inches, Per Dozen, \$20 00



No. 187

No. 187—Fancy Square, $8\frac{1}{2} \times 8\frac{1}{2}$ inches, Height 16 $\frac{1}{4}$ inches, Per Dozen, \$12 75



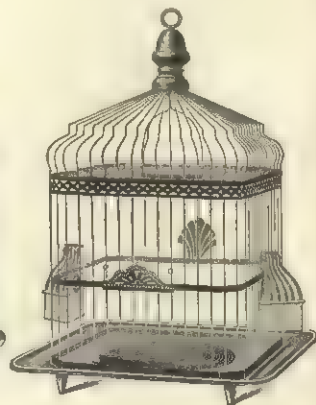
No. 011.

No. 011—Fancy Oblong Square, $10\frac{1}{4} \times 7$ inches, Height 16 inches, Per Dozen, \$13 60



No. 45.

No. 45—Cottage, Fancy Gilded Corners, $12\frac{1}{4} \times 8$ inches, Height 15 inches, Per Dozen, \$25 00



No. 180.

No. 180—Fancy Square, $7\frac{1}{4} \times 7\frac{1}{4}$ inches, Height 16 $\frac{1}{4}$ inches, Per Dozen, \$9 50

The W. H. Co. "IXL" Assortment, Containing Six Cages, One Each of the Above Numbers, Per Assortment, \$8 00

Packed One Assortment in a case, Weight 30 Pounds.

We Do Not Break Assortments.

JAPANNED BIRD CAGES.

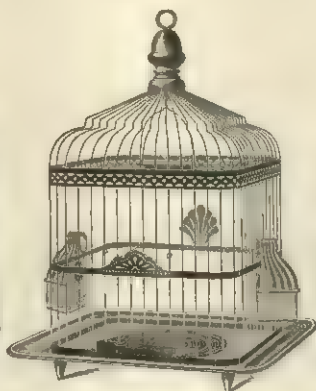
THE ALEXANDER ASSORTMENT.

Contains Six Cages.



No. 008

No. 008 - Fancy Oblong Square,
11 x 7 1/2 inches, Height 16
inches. Per Dozen, \$14.50



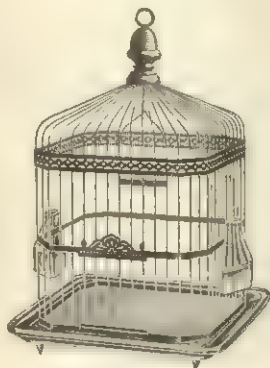
No. 011

No. 011 - Fancy Oblong Square,
10 x 7 inches, Height 16
inches. Per Dozen, \$13.50



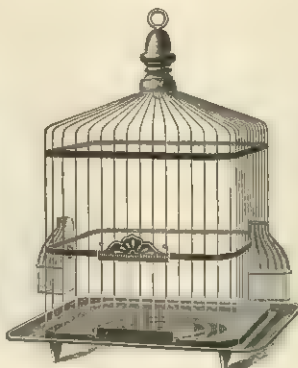
No. 020

No. 020 - Fancy Oblong Square,
12 x 8 1/4 inches, Height 18
inches. Per Dozen, \$15.00



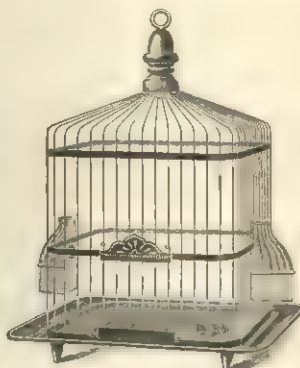
No. 062

No. 062 - Fancy Square, 9 1/2 x 9 1/2
inches, Height 17 inches,
Per Dozen, \$13.50



No. 100.

No. 100 - Plain Square, 8 x 8
inches, Height 15 1/2 inches,
Per Dozen, \$10.25



No. 161.

No. 161 - Plain Square, 8 1/4 x 8 1/4
inches, Height 16 1/2 inches,
Per Dozen, \$11.75

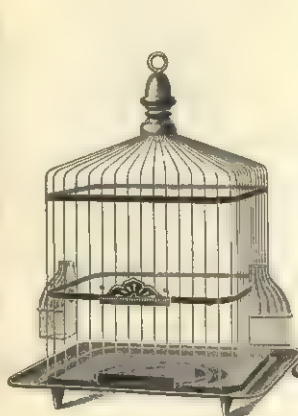
The Alexander Assortment, Containing Six Cages, One Each of the Above Numbers, . . . Per Assortment, \$8.55
Packed One Assortment in a case, Weight 28 Pounds.

We Do Not Break Assortments.

JAPANNED BIRD CAGES.

THE "S. & W." ASSORTMENT.

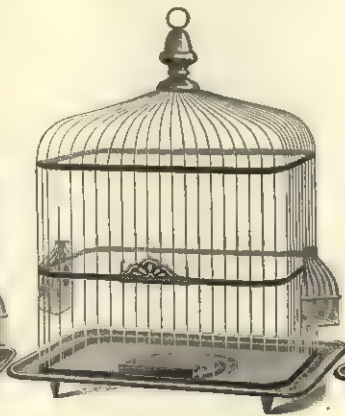
Contains Six Cages.



No. 159.

No. 159—Square, $7\frac{1}{2} \times 7\frac{1}{2}$ inches,
Height 15 inches,

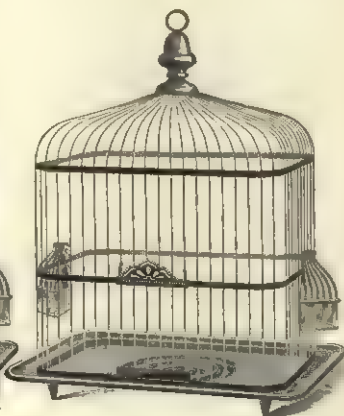
Per Dozen, \$8 75



No. 165.

No. 165—Oblong Square, $9\frac{3}{4} \times 6\frac{1}{4}$
inches, Height 16 $\frac{1}{4}$ inches,

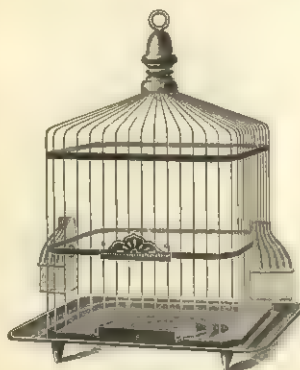
Per Dozen, \$8 75



No. 166.

No. 166—Oblong Square, $10\frac{1}{2} \times 7$
inches, Height 16 inches,

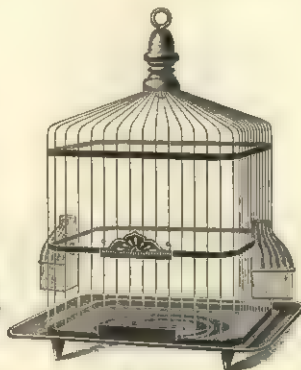
Per Dozen, \$11 75



No. 02.

No. 02—Oblong Square, $8\frac{1}{2} \times 6$
inches, Height 13 $\frac{1}{4}$ inches,

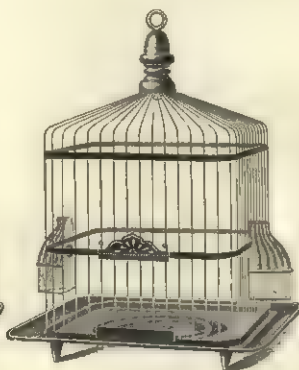
Per Dozen, \$8 50



No. 160.

No. 160—Square, 8×8 inches,
Height 15 $\frac{1}{4}$ inches,

Per Dozen, \$10 25



No. 161.

No. 161—Square, $8\frac{1}{2} \times 8\frac{1}{2}$ inches,
Height 16 $\frac{1}{4}$ inches,

Per Dozen, \$11 75

The "S. & W." Assortment, Containing Six Cages, One Each of the Above Numbers,
Packed One Assortment in a case, Weight 25 Pounds.

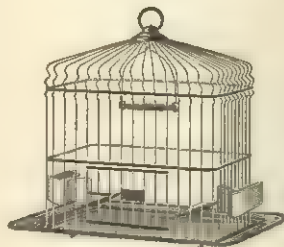
Per Assortment, \$5 00

We Do Not Break Assortments.

BRASS AND JAPANNED BIRD CAGES.

"OUR PRIDE" ASSORTMENT.

Contains Three Brass and Three Japanned Cages.



No. 5002.

No. 5002—Brass, Oblong, Body
8x6 inches, Base $12\frac{1}{4} \times 9\frac{3}{4}$
inches, Height $12\frac{3}{4}$ inches,
Each, \$1 10



No. 5004.

No. 5004—Brass, Oblong, Body
 $9\frac{1}{2} \times 6\frac{1}{2}$ inches, Base $13\frac{1}{4} \times 9\frac{3}{4}$
inches, Height $13\frac{1}{4}$ inches,
Each, \$1 30



No. 5006

No. 5006 Brass, Oblong, Body
 $10\frac{1}{2} \times 7\frac{1}{2}$ inches, Base $13\frac{1}{4} \times 10\frac{3}{4}$
inches, Height $13\frac{1}{4}$ inches,
Each, \$1 60



No. 065

No. 065—Japanned, $9\frac{3}{4} \times 6\frac{1}{2}$
inches, Height $15\frac{1}{4}$ inches,
Per Dozen, \$9 25



No. 066.

No. 066 Japanned, $10\frac{1}{2} \times 7$
inches, Height 16 inches.
Per Dozen, \$12 50



No. 067

No. 067—Japanned, $11 \times 7\frac{1}{2}$
inches, Height $16\frac{1}{2}$ inches.
Per Dozen, \$13 50

"Our Pride" Assortment, Containing Six Cages, One Each of the Above Numbers, . . . Per Assortment, \$6 25
Packed One Assortment in a case, Weight 30 Pounds.

We Do Not Break Assortments.

BRASS BIRD CAGES.

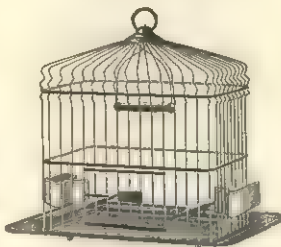
THE "1903" ASSORTMENT.

Contains Six Brass Cages.



No. 5004.

No. 5004—Brass, Oblong,
Body $9\frac{1}{2} \times 6\frac{1}{2}$ inches, Base
 $12\frac{3}{4} \times 9\frac{3}{4}$ inches, Height
 $12\frac{3}{4}$ inches, . . . Each, \$1 30



No. 5006.

No. 5006—Brass, Oblong,
Body $10\frac{1}{2} \times 7\frac{1}{2}$ inches, Base
 $13\frac{1}{4} \times 10\frac{1}{2}$ inches, Height
 $13\frac{1}{4}$ inches, . . . Each, \$1 60



No. 5008.

No. 5008—Brass, Oblong,
Body $10\frac{1}{2} \times 8\frac{1}{2}$ inches, Base
 $13\frac{3}{4} \times 11$ inches, Height $14\frac{1}{4}$
inches, . . . Each, \$3 00

The "1903" Assortment, Containing Six Cages, Two Each of the Above Numbers, . . . Per Assortment, \$9 80
Packed One Assortment in a case, Weight 25 Pounds.

THE YELLOWBIRD ASSORTMENT.

Contains Six Brass Cages.

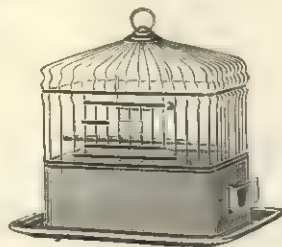


Nos. 5004 to 5008.

No. 5004—Brass, Oblong, Body $9\frac{1}{2} \times 6\frac{1}{2}$ inches,
Base $12\frac{3}{4} \times 9\frac{3}{4}$ inches, Height $12\frac{3}{4}$ inches,
Each, \$1 30

No. 5006—Brass, Oblong, Body $10\frac{1}{2} \times 7\frac{1}{2}$ inches,
Base $13\frac{1}{4} \times 10\frac{1}{2}$ inches, Height $13\frac{1}{4}$ inches,
Each, 1 60

No. 5008—Brass, Oblong, Body $10\frac{1}{2} \times 8\frac{1}{2}$ inches,
Base $13\frac{3}{4} \times 11$ inches, Height $14\frac{1}{4}$ inches,
Each, 2 00



Nos. 5002/G to 5006/G.

No. 5002 G—Brass, Oblong Square, with Guard,
Body 9×6 inches, Base $12\frac{1}{4} \times 9\frac{1}{4}$ inches,
Height 12 inches, . . . Each, \$1 90

No. 5004 G—Brass, Oblong Square, with Guard,
Body $9\frac{1}{2} \times 6\frac{1}{2}$ inches, Base $12\frac{3}{4} \times 9\frac{3}{4}$
inches, Height $12\frac{3}{4}$ inches, . . . Each, 2 10

No. 5006/G—Brass, Oblong Square, with Guard,
Body $10\frac{1}{2} \times 7\frac{1}{2}$ inches, Base $13\frac{1}{4} \times 10\frac{1}{2}$
inches, Height $13\frac{1}{4}$ inches, . . . Each, 2 40

The Yellowbird Assortment, Containing Six Cages, One Each of the Above Numbers, . . . Per Assortment, \$11 30
Packed One Assortment in a case, Weight 28 Pounds.

We Do Not Break Assortments.

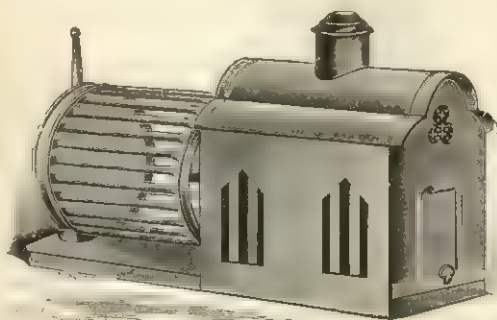
PARROT CAGES.



No. 85.

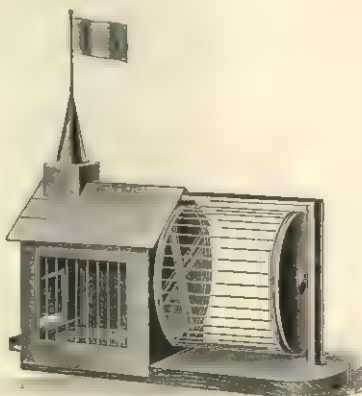
- No. 85—Parrot Cages,** Diameter 15½ inches, Tinned Steel Rails, No. 12 Tinned Wire, 1-¹¹/₁₆ inch Space, Plain Zinc Bases,
Rails and Upright Wires are Riveted, Each, \$1 75
- No. 90—Parrot Cages,** Diameter 17½ inches, otherwise same as No. 85, Each, 2 15

SQUIRREL CAGES.



No. 1.

- No. 1—Squirrel Cage,** Bright Tin, House 14 inches long,
13 inches high, 10 inches wide, Wheel 14 inches
long, 10½ inches diameter, Each, \$3 50



No. 3

- No. 3—Gray Squirrel Cage,** Bright Tin, Wheel
Outside, Body 18½ x 10½ inches, Wheel 10½ x 5
inches, Height 14½ inches, Each, \$1 75

WOOD BIRD CAGES. NESTED IN ASSORTMENTS.

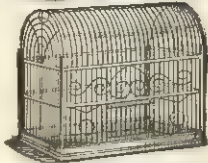
Oblong Canary, Length 17 inches, Width $12\frac{1}{4}$ inches, Height 16 inches. Used in Assortments Nos. 1, 3 and 6



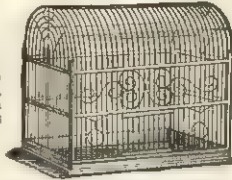
No. 2, Robin, Length $19\frac{1}{2}$ inches, Width $11\frac{1}{2}$ inches, Height $18\frac{1}{4}$ inches. Used in Assortments Nos. 1, 2, 3 and 6.



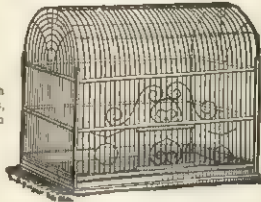
No. 1, Robin, Length 22 inches, Width $13\frac{1}{4}$ inches, Height 20 $\frac{1}{2}$ inches. Used in Assortments Nos. 3, 2, 4, 5 and 6.



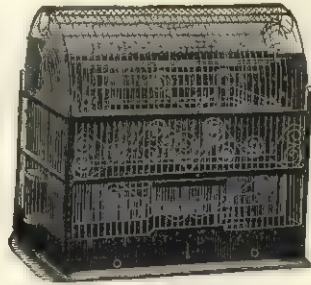
No. 2, Mocking Bird, Length $23\frac{1}{2}$ inches, Width 14 inches, Height 22 $\frac{1}{2}$ inches. Used in Assortments Nos. 1, 2, 3, 4 and 5.



No. 1, Mocking Bird, Length $26\frac{1}{2}$ inches, Width 16 inches, Height 23 $\frac{1}{2}$ inches. Used in Assortments Nos. 1, 2 and 4.



Cuts Show Relative Sizes of Wood Cages in Assortments Nos. 1, 2, 3, 4, 5 and 6.



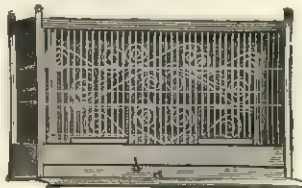
Cut Shows Wood Cages Nested.

WOOD BIRD CAGES.

SEASONED LUMBER, EXTRA QUALITY TINNED WIRE.

- No. 1 Assortment** Contains Five Sizes, Nos. 1 and 2 Mocking, Nos. 1 and 2 Robin, Oblong Canary, ... Per Nest, \$10 50
- No. 2 Assortment**—Contains Four Sizes, Large, Nos. 1 and 2 Mocking, Nos. 1 and 2 Robin, ... Per Nest, 9 00
- No. 3 Assortment**—Contains Four Sizes, Small, No. 2 Mocking, Nos. 1 and 2 Robin, Oblong Canary, ... Per Nest, 7 75
- No. 4 Assortment**—Contains Three Sizes, Large, Nos. 1 and 2 Mocking, No. 1 Robin, ... Per Nest, 7 50
- No. 5 Assortment**—Contains Three Sizes, Medium, Nos. 1 and 2 Robin, No. 2 Mocking, ... Per Nest, 6 50
- No. 6 Assortment**—Contains Three Sizes, Small, Nos. 1 and 2 Robin, Oblong Canary, ... Per Nest, 5 25

DOUBLE BREEDING BIRD CAGES.



No. 7.

No. 7 Assortment, Nested Breeding Cages, Contains Three Cages, Small, Medium and Large, Complete with Cups and Saucers, ... Per Nest, \$8 50

SADDLES.



No. 293

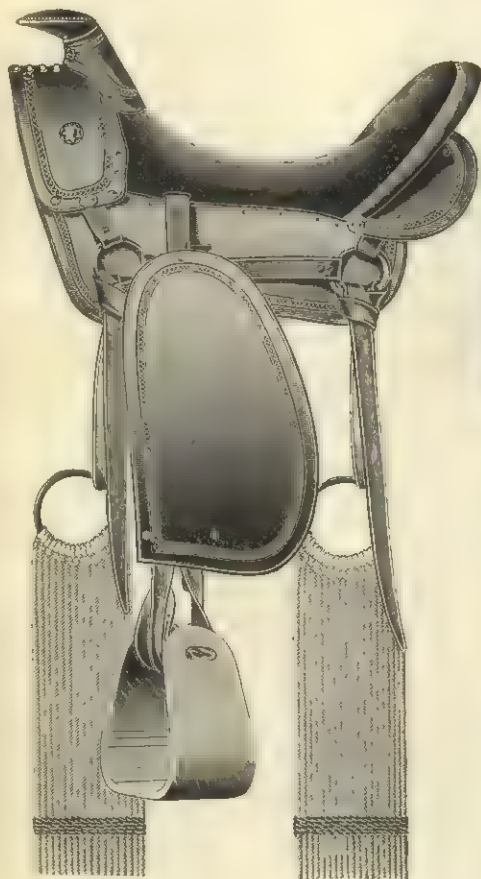


No. 294.

No. 293—Morgan Horn Saddle, 14-inch Seat,
 Skirts 14 x 5 inches, Stirrup Leathers 1 inch,
 Tie Straps $\frac{3}{4}$ inch, Carpet Covered Bars, 4-
 inch Bent Stirrups, Cotton Cinchas. Each, \$7 15

No. 294—Morgan Horn Saddle, 14-inch Seat,
 Skirts 14 x 8 inches, Stirrup Leathers 1 inch,
 Tie Straps 1 inch, Carpet Covered Bars, 4-
 inch Bent Stirrups, Cotton Cinchas. Each, \$10 45

SADDLES.



No 296

No. 296—Corker Saddle, 14-inch Seat, Skirts 13 x 4 inches, Stirrup Leathers 1 inch, Tie Straps $\frac{7}{8}$ -inch, Carpet Covered Bars, Cheyenne Cantle, 4-inch Bent Stirrups, Cotton Cinchas, Each, \$11.55



No. 309.

No. 309 Banner Saddle, 14-inch Seat, Steel Fork, Skirts 22 x 12 inches, Stirrup Leathers 2 inches, Rounder Straps 1 inch, Sweat Leathers 13 1/2 x 7 1/2 inches, Bound Cantle, 4-inch Bent Stirrups, Cotton Cinchas, Each, \$14.30

SADDLES.



No. 312

No. 312—Rough Rider Saddle, 14-inch Seat, Steel Fork, Seat and Jockeys in one piece, Skirts 24 x 2 inches, Stirrup Leathers 1½ inches, Reeing Strap 1½ inch, Off Reeing Strap 1½ inch, Sweat Leathers 14 x 8 inches, Cheyenne Cattle, Stirrups Bent or Ox Bow, Hair Candles, Each, \$10.80



No. 370

No. 370—World Beater Saddle, 14½-inch Seat, Steel Fork, Full Seat Jockeys and Cattle in one piece, Skirts 24 x 11 inches, Stirrup Leathers 2 inch doubled at points, Reeing Strap 1½ inch, Off Reeing Strap 1½ inch, Sweat Leathers 14 x 8 inches, Cheyenne Cattle, Stirrups Ox Bow, Hair Candles, Each, \$22.00

SADDLES.



No. 320.

No. 320—Texas Wonder Saddle, 14½-inch Seat, Steel Fork, Full Seat and Jockeys in one piece, Skirts 24x12 inches, Felt Lined, Stirrup Leathers 2½ inches doubled at points, Reeling Straps 1½ inch, Off Reeling Strap 1½ inch, Sweat Leathers 14½x9 inches, Cheyenne Cantle, Stirrups Ox Bow, Hair Cinchas, ... Each, \$24 20



No. 321

No. 321—Cowboys' Delight Saddle, 16 inch Seat, Steel Fork, Skirts 26x13 inches, Felt Lined, Stirrup Leathers 3 inches doubled at points, Reeling Straps 1½ inch, Off Reeling Strap 1½ inch, Sweat Leathers 17x9 inches, Cheyenne Cantle, Stirrups Ox Bow, Hair Cinchas, ... Each, \$29 70

SADDLES.



No. 40, FERGUSON.

No. 40—Ferguson Saddle, 14-inch Seat, Stirrup
Leathers $1\frac{1}{2}$ inch, Latigo Tree Straps $1\frac{1}{4}$
inch. Sweat Leathers 17×9 inches, Chey-
enne Cantle, Bent Stirrups, Cotton Chinlads.

Each, \$11.75



No. 72, KENTUCKY.

No. 72 Kentucky Spring Seat Saddle, 16 inch
Seat, Broad Cantle, Double Gullet, Ironed
Tree, Calf or Goat, Quilted or Plain Seat,
Pad Sheepskin, Carpet Lined, Stirrup
Leathers $1\frac{1}{2}$ inch, Girth Straps $1\frac{1}{4}$ inch,
Solid Bent Stirrups, Corded Girths, Each, \$16.50

NOTE.—Be sure and state kind of seat wanted, Calfskin or
Goatskin, Quilted or Plain

SIDE SADDLES.

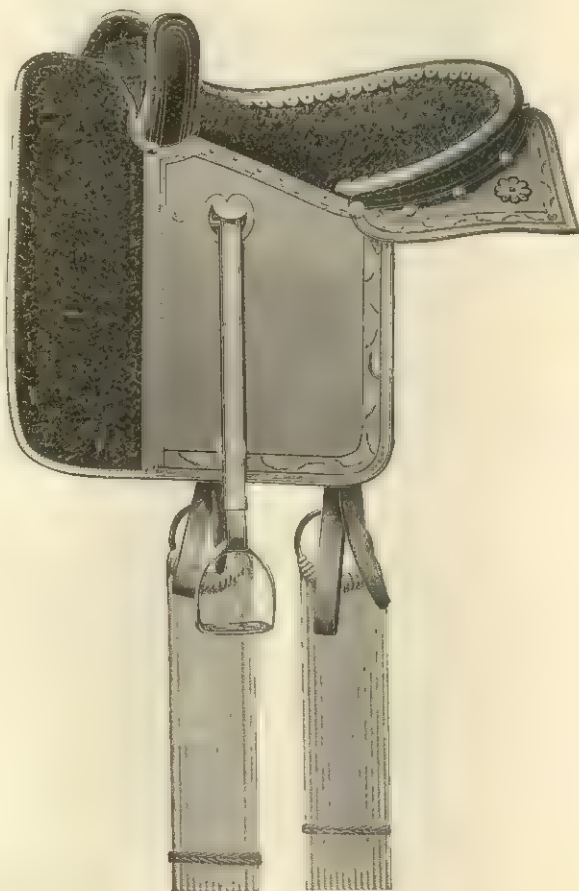


No. 220, SIDE SADDLE.

No. 220—Jim Dandy Side Saddle, Morgan Tree—17 $\frac{1}{2}$ inches, Peash Seat, Padded Bars. Skirts 13x15 inches. Stirrup
Leathers $\frac{3}{4}$ inch, Tie Straps $\frac{3}{8}$ inch, Cotton Cinchus,

Each, \$8 25

SIDE SADDLES.



No. 234 SIDE SADDLE

No. 234—Our Leader Side Saddle, Morgan Tree 17 $\frac{1}{2}$ inches, Polish Seat and Fore Piece, Painted Bars, Skirts 15x17 inches, Stirrup Leather $\frac{3}{4}$ inch, Double Tie Straps $\frac{7}{8}$ in. l., Cotton Cinchas,

Each, \$12.65

SIDE SADDLES.



No. 231, SIDE SADDLE

No. 231—Morgan Side Saddle, Morgan Tree 17 $\frac{3}{4}$ inches. Plush Seat, Leather Cantle, Padded Bars, Skirts 14 x 16 inches, Stirrup Leathers $\frac{3}{4}$ inch, 1 $\frac{1}{2}$ Straps 1 inch, Cotton Cinchas, Each, \$20.00

No. 236—Morgan Side Saddle, Morgan Tree 17 $\frac{1}{2}$ inches, Plush Seat and Fore Panels, Quilted Roll, Padded Bars, Skirts 15 x 17 inches, Stirrup Leathers $\frac{3}{4}$ inch, Double Tie Straps $\frac{1}{2}$ inch, Furry Cotton Cinchas, Each, \$14.30



No. 236, SIDE SADDLE.

CIRCULAR SAWS.

HENRY DISSTON & SONS'

PATENT GROUND AND TEMPERED SOLID TOOTH CIRCULAR SAWS, OF EXTRA QUALITY.

Superior Workmanship, and Guaranteed as per Warranty.

This illustration represents various Styles of Teeth for Circular Saws, and our Standard Gauge. By referring to this when ordering, customers will be enabled to inform us the style of tooth and gauge of saw required.

All our stock saws, forty inches in diameter and larger, have 2-inch mandrel-hole and $\frac{3}{8}$ inch pin-hole, three inches from center to center. If wanted different, please send full pattern of holes.



WHEN ORDERING

Circular Saws, the following directions should be explicitly given:

- (1) Diameter, in inches; (2) thickness or gauge at center; (3) thickness or gauge at rim; (4) right-hand or left-hand; (5) number of teeth; (6) style of tooth, as in illustration; (7) size of mandrel-hole; (8) size of pin-hole; (9) distance from center to center of pin-holes; (10) greatest feed at each revolution, in inches; (11) kind of timber to be sawed; (12) number of revolutions per minute.

When ordering bolt-saws, state whether rip or cross-cut.

Diameter inches	Thickness inches	Size of hole inches	Price each	Extra for addi- tional gauge (heavier)	Price for beveling new saws (grinding or beveling old saws extra)	Extra for setting and sharpening if rip saw.	Extra for setting and sharpening if cross cut saw.	Plam- ter, inches	Thick- ness Gauge.	Size of hole, inches.	Price each.	Extra for addi- tional gauge (heavier)	Price for beveling new saws (grinding or beveling old saws extra).	Extra for setting and sharpening if rip saw.	Extra for setting and sharpening if cross cut saw.
1	21	$\frac{3}{8}$	\$1 50	\$1 01	\$0 06 per gauge	\$0 15	\$0 20	32	10	1 $\frac{1}{2}$	\$20 00	\$1 00	\$1 40 per gauge	\$1 40	\$2 05
1 $\frac{1}{4}$	24	$\frac{3}{8}$	35	01	07	17	23	34	9	1 $\frac{1}{2}$	23 50	1 20	1 55	1 60	2 35
2	24	$\frac{3}{8}$	60	01 $\frac{1}{2}$	08	18	25	36	9	1 $\frac{1}{2}$	25 50	1 40	1 70	1 70	2 55
2 $\frac{1}{2}$	29	$\frac{3}{8}$	65	02	09	20	28	38	9	1 $\frac{1}{2}$	30 00	1 75	1 85	1 85	2 75
3	21	$\frac{3}{8}$	70	02 $\frac{1}{2}$	10	21	30	40	0	2	35 00	2 00	2 00	2 00	2 95
3 $\frac{1}{2}$	20	$\frac{3}{8}$	80	03	12	23	32	42	8	2	42 00	2 50	2 20	2 20	3 15
4	19	$\frac{3}{8}$	1 00	03	14	25	35	44	8	2	50 00	3 00	2 40	2 40	3 35
5	19	$\frac{3}{8}$	1 20	04	16	28	40	46	8	2	60 00	3 50	2 60	2 60	3 60
6	18	$\frac{3}{8}$	1 10	05	18	30	45	48	8	2	70 00	4 00	2 80	2 80	3 80
7	18	$\frac{3}{8}$	1 70	06	20	33	50	50	7	2	80 00	4 50	3 00	3 00	4 10
8	18	$\frac{3}{8}$	2 00	08	22	35	55	52	7	2	90 00	5 00	3 25	3 25	4 40
9	17	$\frac{3}{8}$	2 30	10	25	40	60	54	7	2	1 00 00	6 00	3 50	3 50	4 70
10	16	1	3 00	12	28	45	65	56	7	2	1 15 00	7 00	3 75	3 75	5 00
11	15	1	3 50	14	30	48	70	58	7	2	1 30 00	8 00	4 05	4 05	5 30
12	15	1	4 00	16	35	50	75	60	6	2	1 45 00	9 00	4 35	4 35	5 60
13	14	1 $\frac{1}{2}$	4 50	21	40	55	80	62	6	2	1 60 00	10 00	4 65	4 65	6 00
14	14	1 $\frac{1}{2}$	5 50	27	50	60	95	64	6	2	1 80 00	12 00	5 00	5 00	6 30
15	13	1 $\frac{1}{2}$	7 00	34	60	70	1 05	66	6	2	2 00 00	15 00	5 35	5 35	6 60
20	13	1 $\frac{1}{2}$	8 50	51	70	80	1 35	68	5	2	2 25 00	18 00	5 75	5 75	6 90
22	12	1 $\frac{1}{2}$	10 00	55	80	90	1 50	70	5	2	2 55 00	21 00	6 15	6 15	7 20
24	11	1 $\frac{1}{2}$	12 00	65	90	1 00	1 15	72	5	2	2 80 00	24 00	6 55	6 55	7 60
26	11	1 $\frac{1}{2}$	14 00	65	1 05	1 10	1 20	74	5	2	3 00 00	27 00	7 00	7 00	7 75
28	10	1 $\frac{1}{2}$	16 00	81	1 30	1 20	1 50	76	5	2	3 75 00	30 00	7 50	7 50	8 00
30	10	1 $\frac{1}{2}$	18 00	81	1 30	1 30	1 95								

Circular Saws for Bone or Ivory add 50 per cent to above list. No extra charge for Saws one gauge thicker than list.

Circular Saws 48 inches and larger, if made thinner than 10 gauge are not warranted, and add 10 per cent. for each gauge thinner than No. 10.

Circular Saws 42 inches and less in diameter beveled one gauge without extra charge; 44 inches and larger beveled two gauges without extra charge.

CROSS-CUT SAWS.

WITHOUT HANDLES.

WITTE HARDWARE CO.



W. H. Co. DEXTER TOOTH, SPECIAL RAZOR STEEL, 14x18 GAUGE

Size, feet, ...	6	6½	7	7½
Each, ...	\$4.10	4.60	4.90	5.20

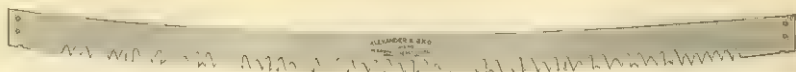


W. H. Co. "I X L" CHAMPION TOOTH, 14x18 GAUGE

Size, feet, ...	5	5½	6	6½	7	7½
Each, ...	\$2.90	3.10	3.40	3.70	3.80	4.20

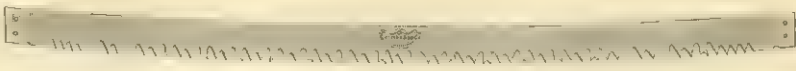
NARROW CROSS-CUT SAWS.

WITHOUT HANDLES.



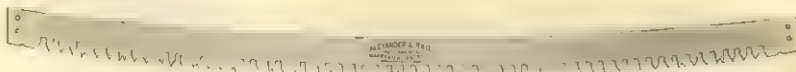
ALEXANDER & BRO. CHAMPION TOOTH, EXTRA CAST STEEL.

Size, feet, ...	5	5½	6	6½	7
Each, ...	\$1.50	1.65	1.80	1.95	2.10



ECLIPSE CHAMPION TOOTH, CAST STEEL.

Size, feet, ...	5	5½	6	6½	7
Each, ...	\$1.15	1.25	1.40	1.50	1.65



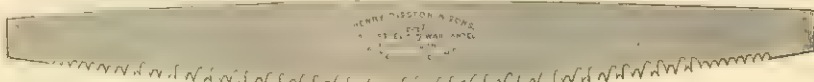
ALEXANDER & BRO. DIAMOND TOOTH, EXTRA CAST STEEL.

Size, feet, ...	5	5½	6	6½	7
Each, ...	\$1.60	1.80	1.95	2.15	2.35

CROSS-CUT SAWS.

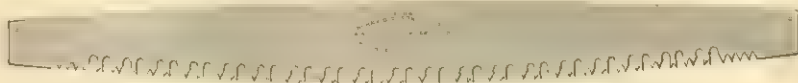
WITHOUT HANDLES.

HENRY DISSTON & SONS.



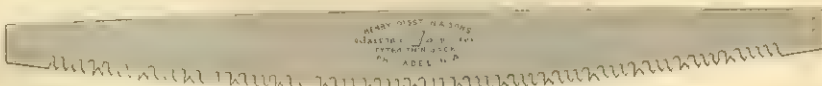
CHAMPION TOOTH, TWO GAUGES THINNER ON BACK THAN ON TOOTH EDGE.

Size, feet,	4	4½	5	5½	6	6½	7	7½	8
Each,	\$2.16	2.43	2.70	2.97	3.24	3.51	3.78	4.05	4.32



TUTTLE TOOTH, FOUR GAUGES THINNER ON BACK THAN ON TOOTH EDGE.

Size, feet,	4	4½	5	5½	6	6½	7	7½	8
Each,	\$2.40	2.70	3.00	3.30	3.60	3.90	4.20	4.50	4.80



LANCET TOOTH, FOUR GAUGES THINNER ON BACK THAN ON TOOTH EDGE.

Size, feet,	4	4½	5	5½	6	6½	7	7½	8
Each,	\$2.72	3.06	3.40	3.74	4.08	4.42	4.76	5.10	5.44



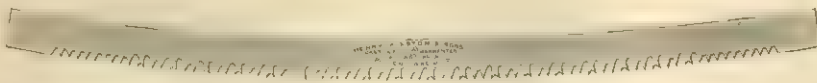
DIAMOND TOOTH, FOUR GAUGES THINNER ON BACK THAN ON TOOTH EDGE.

Size, feet,	4	4½	5	5½	6	6½	7	7½	8
Each,	\$2.72	3.06	3.40	3.74	4.08	4.42	4.76	5.10	5.44

NARROW CROSS-CUT SAWS.

WITHOUT HANDLES.

CHAMPION TOOTH.



Size, feet,	4	4½	5	5½	6	6½	7	7½	8
Each,	\$1.44	1.62	1.80	1.98	2.16	2.34	2.52	2.70	2.88

Add 10 cents per foot or fraction of a foot on saws over 8 feet in length.

CROSS-CUT SAWS.

WITHOUT HANDLES.

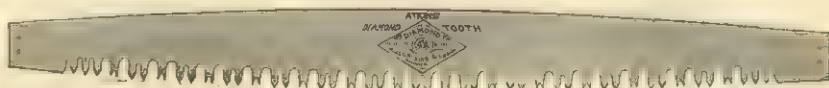
E. C. ATKINS & CO.

SPECIAL STEEL SAWS.



TUTTLE TOOTH, THIN BACK.

Size, feet, . . .	4	4½	5	5½	6	6½	7	7½	8
Each, . . .	\$2.00	2.26	2.50	2.76	3.00	3.26	3.50	3.76	4.00



DIAMOND TOOTH, THIN BACK.

Size, feet, . . .	4	4½	5	5½	6	6½	7	7½	8
Each, . . .	\$2.24	2.52	2.80	3.08	3.36	3.64	3.92	4.20	4.48



DEXTER TOOTH, EXTRA THIN BACK.

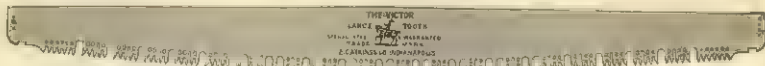
Size, feet, . . .	4	4½	5	5½	6	6½	7	7½	8
Each, . . .	\$3.20	3.60	4.00	4.40	4.80	5.20	5.60	6.00	6.40



LONE STAR, THIN BACK.

Size, feet, . . .	4	4½	5	5½	6	6½	7	7½	8
Each, . . .	\$2.24	2.52	2.80	3.08	3.36	3.64	3.92	4.20	4.48

Lone Star--Six-foot blade, 5½ inches wide at center; seven-foot blade, 6 inches wide at center.



VICTOR, THIN BACK, LANCE TOOTH, PERFORATED.

Size, feet, . . .	4	4½	5	5½	6	6½	7	7½
Each, . . .	\$2.40	2.70	3.00	3.30	3.60	3.90	4.20	4.50

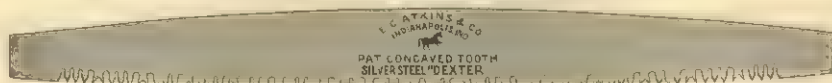
NOTE--"Thin Back" is 14x18 gauge; "Extra Thin Back," 14x19 gauge.

CROSS-CUT SAWS.

E. C. ATKINS & CO.

SILVER STEEL SAWS.

These Saws are made of Atkins' "Silver Steel" Tool Steel. They have a depression of the face of the cutting teeth through the center from point to base, thus removing all friction while in use, giving strength and stiffness to the teeth and increasing three-fold the durability of the set.



DEXTER TOOTH, 14x18 GAUGE.

Size, feet,	4	4½	5	5½	6	6½	7	7½	8
Each,	\$4.00	4.50	5.00	5.50	6.00	6.50	7.00	7.50	8.00



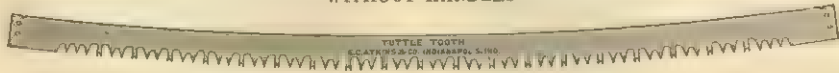
DIAMOND TOOTH, 14x18 GAUGE.

Size, feet,	4	4½	5	5½	6	6½	7	7½	8
Each,	\$4.00	4.50	5.00	5.50	6.00	6.50	7.00	7.50	8.00

These Saws Are Furnished with One Pair of Atkins' No. 1 Handles and a Raker Gauge.

E. C. ATKINS & CO. NARROW OR HOLLOW BACK CROSS-CUT SAWS.

WITHOUT HANDLES



TUTTLE TOOTH.

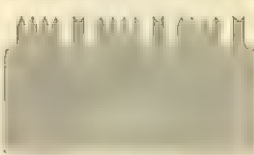
Size, feet,	4	4½	5	5½	6	6½	7	7½	8
Each,	\$1.12	1.25	1.40	1.54	1.68	1.82	1.96	2.10	2.24



DIAMOND TOOTH.

Size, feet,	4	4½	5	5½	6	6½	7	7½	8
Each,	\$1.20	1.35	1.50	1.65	1.80	1.95	2.10	2.25	2.40

STYLES OF TEETH USED IN CROSS-CUT SAWS.



ONE-MAN CROSS-CUT SAWS.



DISSTON'S CHAMPION TOOTH, CAST STEEL, COMPLETE WITH SUPPLEMENTARY HANDLE.

Size, feet,	3	3½	4	4½	5	5½	6
Each,	\$2.25	2.60	3.00	3.35	3.70	4.10	4.45



ALEXANDER & BRO.'S CHAMPION TOOTH, CAST STEEL, WITH SUPPLEMENTARY HANDLE.

Size, feet,	3	3½	4	4½	5
Each,	\$1.50	2.20	2.52	2.84	3.15

Packed one-quarter dozen in a bundle.

ICE SAWS.

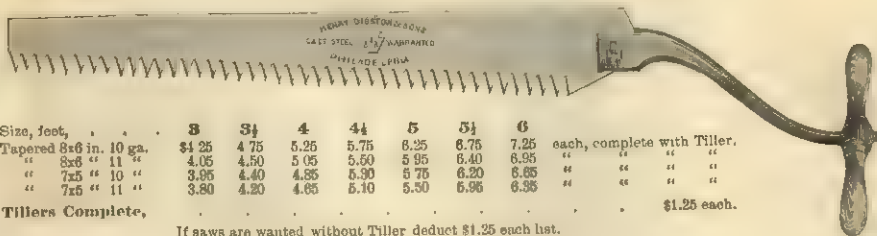


HAND ICE SAWS, MALLEABLE IRON HANDLE.

Size, inches,	26	28	30
Per dozen,	\$23 00	24.00	25 00

Packed one-half dozen in a box.

HENRY DISSTON & SONS' POND ICE SAW.



Size, feet,	3	3½	4	4½	5	5½	6	
Tapered 8x6 in. 10 ga.	\$4 25	4 75	5 25	5 75	6 25	6 75	7 25	each, complete with Tiller.
" 8x6 " 11 "	4 05	4 50	5 05	5 50	5 95	6 40	6 95	" " "
" 7x5 " 10 "	3 95	4 40	4 85	5 30	5 75	6 20	6 65	" " "
" 7x5 " 11 "	3 80	4 20	4 65	5 10	5 50	5 95	6 35	" " "

Tillers Complete,

\$1.25 each.

If saws are wanted without Tiller deduct \$1.25 each list.

HAND AND RIP SAWS.



WITTE'S PRIDE.

EXTRA SPRING STEEL, BLUED STEEL BLADE, FANCY ETCHED, SKEW BACK, CARVED POLISHED APPLE HANDLE, FOUR IMPROVED NICKEL-PLATED SCREWS.

Witte's Pride—Hand Saw, 28 inches, 6 to 12 Points, ... Per Doz., \$26 00



WITTE'S EXTRA

EXTRA CAST STEEL, GRAINED BLADE, SKEW BACK, CARVED APPLE HANDLE, FOUR IMPROVED BRASS SCREWS.

Witte's Extra—Hand Saw, 28 inches, 6 to 12 Points, ... Per Doz., \$24 00

Witte's Extra—Rip Saw, 28 inches, 4½ to 6 Points, ... Per Doz., 27 00

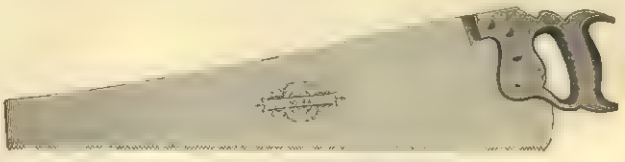


W. H. CO. "IXL."

LONDON SPRING STEEL, GRAINED BLADE BEECH HANDLE, FOUR IMPROVED BRASS SCREWS

W. H. Co. "IXL"—Hand Saw, 28 inches, 6 to 12 Points, ... Per Doz., \$20 00

W. H. Co. "IXL"—Rip Saw, 28 inches, 4½ to 6 Points, ... Per Doz., 23 00



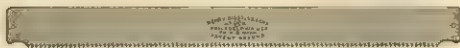
ALEXANDER & BRO.

LONDON SPRING STEEL, GRAINED BLADE, SKEW BACK, BEECH HANDLE, FOUR IMPROVED BRASS SCREWS.

Alexander & Bro.—Hand Saw, 28 inches, 6 to 10 Points, ... Per Doz., \$18 00

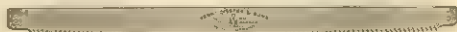
Packed one-third Dozen in a box.

WOOD SAW BLADES.



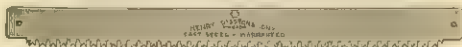
No. 6.

W. H. Co. IXL Cast Steel Blade, 30 inches, 6 points, and assorted $4\frac{1}{2}$ to $5\frac{1}{2}$ points, ...	Per Doz	\$6 00
No. 6—Disston's Cast Steel Blade, 30 inches, 6 points, and assorted $4\frac{1}{2}$ to $5\frac{1}{2}$ points, ...		7 50



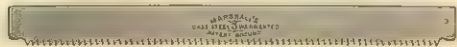
No. 45.

Alexander & Bro.—Narrow Blued Blade, assorted, $4\frac{1}{2}$ to $5\frac{1}{2}$ points, ...	\$6 00
No. 45—Disston's Round-Breasted Blue Blade, 30 inches, assorted, $4\frac{1}{2}$ to $5\frac{1}{2}$ points, ...	7 50



No. 77.

No. 77—Disston's Improved Champion Blade, set and sharpened, 30 inches, assorted, $4\frac{1}{2}$ to $5\frac{1}{2}$ points, ...	\$8 25
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No. 3.

No. 3—Marshall, Cast Steel Blade, 30 inches, assorted, 4 to 5 points, ...	\$5 75
No. 4—Jackson, Cast Steel Blade, 30 inches, assorted, 4 to 5 points, ...	4 00

Packed One Dozen in a Bundle.

SAW RODS.



W. H. Co.'s Samson Saw Rod, Extra Heavy, tinned with Japanned (Size, inches, ...	21	22	23
Swivels, capable of sustaining a strain of 1,000 pounds without stripping, (Per gross, ...	\$22 50	22 50	24 00



CLIPPER.

Clipper Saw Rod, plain, ...	{ Size, inches, ...	21	22	23
	{ Per gross, ...	\$12 00	12 00	13 00



FAVORITE.

Favorite Saw Rod, tinned, ...	{ Size, inches, ...	21	22	23
	{ Per gross, ...	\$17 50	17 50	19 00

Packed One Dozen in a Bundle.

SAW SETS.

DISSTON & SONS' STAR SAW SET.

For Hand, Back, Band, Web, Wood
and small Circular Saws, not thicker
than 18 gauge.



Prominent among the advantages
claimed for this set is that it can be
operated by the foot by means of a
treadle, thus leaving the hands free to
guide the saw; or it can be used by
striking on the top with a light mallet.

Disston Star Saw Set, Per
Dozen, ... \$9 00



MORRILL'S HAND.

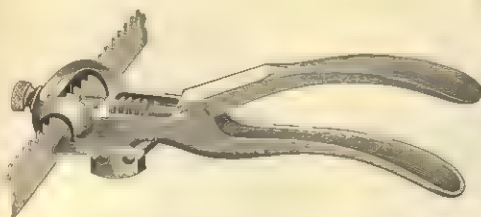
No. 1 Morrill's Improved, for Hand, Band and
Jig Saws; from the widest made down to
 $\frac{1}{8}$ inch, ... Per Dozen, \$12 00



MORRILL'S CROSS CUT.

No. 3 Morrill's, for Single Tooth **Cross Cut**
and **Circular Saws**, from 14 to 20 gauge,
Per Dozen, ... \$24 00

No. 4—Morrill's, Cross Cut, M or Champion Tooth,
from 14 to 20 gauge, ... Per Dozen, 24 00



No. 101—Morrill's Pattern, for Hand, Band
and Jig Saws, ... Per Dozen, \$10 00



No. 103—Morrill's Pattern, for Single Tooth,
Cross Cut and small **Circular Saws**,
Per Dozen, ... \$18 00

No. 104—Morrill's Pattern, for Champion Cross
Cut Saws, ... Per Dozen, 18 00

Lacked One-half Dozen in wood boxes.

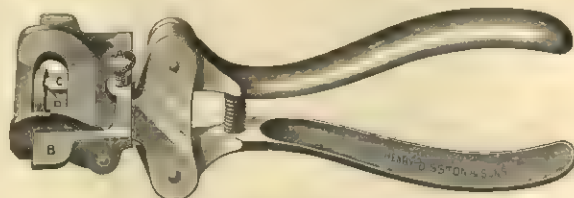
SAW SETS.



DISSTON & SONS' PATENT REVOLVING SAW SETS.

- No. 1—Large Size, ...
- No. 2—Small Size, ...

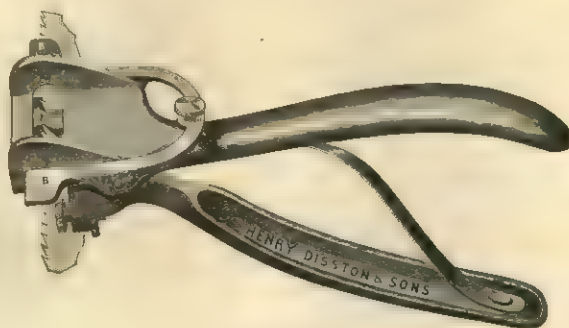
Per Dozen, \$8 00
Per Dozen, 4 75



TRIUMPH.

- No. 28—Triumph Saw Sets, Polished Finish, ...

Per Dozen, \$12 00



MONARCH

- No. 1—Monarch Saw Sets, Japanned, ...
- No. 2—Monarch Saw Sets, Polished, ...

Per Dozen, \$8 00
Per Dozen, 10 00

Packed One-half Dozen in a box.

SAW SETS.



TAINTOR'S.

No. 93—Taintor's Positive, All Steel, Ten different Positions, ... Per Dozen, \$18 00
Packed Half Dozen in a box.



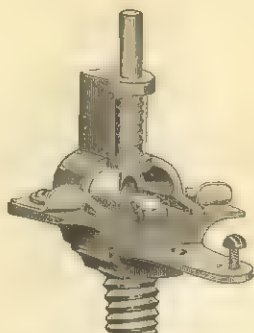
LEVER.

No. 3—Common Lever, Wood Handle, Per Dozen, \$2 00
One Dozen in a box.



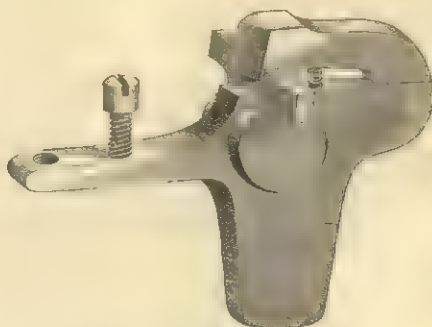
STILLMAN'S PATTERN.

No. 4—Stillman's Pattern, Lever, Hand, ... Per Dozen, \$2 50
No. 5—Stillman's Cross Cut, ... Per Dozen, 5 00
Lever, One Dozen; Cross Cut, One-half Dozen in a box.



HOTCHKISS

No. 1—Hotchkiss Pattern Hammer, with Iron Body, Steel Mandrel and Anvil, Per Dozen, \$6 50
One Dozen in a box.



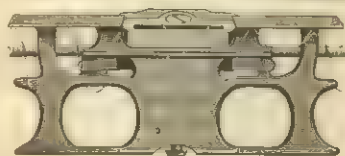
AIKEN'S PATTERN, HALF POLISH

No. 1—Painted Green, Forged Steel Hammer, ... Per Dozen, \$6 00
No. 2—Painted Red, A.I. Forged Steel, ... Per Dozen, 5 25
One Dozen in a wood box.

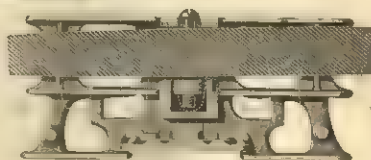
SAW TOOLS. "EXCELSIOR" SAW TOOLS.



JOINTER



RAKER TOOTH GAUGE.



SIDE FILE



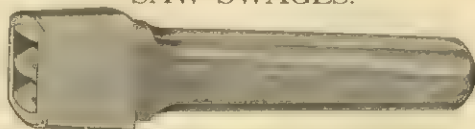
SETTING BLOCK.



TOOTH SET GAUGE.

Excelsior—Comprising a Combined **Jointer, Raker Tooth Gauge, Side File, Setting Block and Set Gauge.** Put up in a neat box containing full instructions for use, Per Dozen Sets, \$10.00

SAW SWAGES.



Cut shows No. 2.

DISSTON'S CONQUEROR.

No. 00 - Conqueror, for large Circular Saws; middle
tongue projects, Each, \$4 00
No. 0 Conqueror, for large Circular Saws, middle
tongue projects, Each, 3 50

No. 1 - Conqueror, for large Circular Saws, Each, \$3 00
No. 2 Conqueror, for small Circular and Mill
Saws, Each, 2 50
No. 3 - Conqueror, for small Circular Saws, Each, 2 00



Cut shows No. 0.

MIXTER'S DUPLEX

No. 3—Duplex Swage, largest size, for Saws of from 5 to 10 Gauge.
No. 2 Duplex Swage, medium size, for Saws of from 8 to 12 Gauge
No. 1—Duplex Swage, for all thinner Gauges,
No. 0—Duplex Swage, for small, thin Saws,

Each, \$7 00
Each, 6 00
Each, 5 00
Each, 4 00

SAW VISES AND CLAMPS.



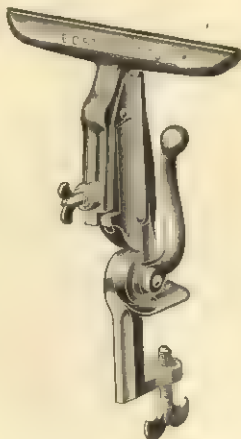
No. 0.

No. 0—Stearns', 9½ inch Jaws, . . . Per Dozen, \$10 00



No. 3.

No. 3—Stearns', 9½ inch Jaws, . . . Per Dozen, \$16 00



No. 10.

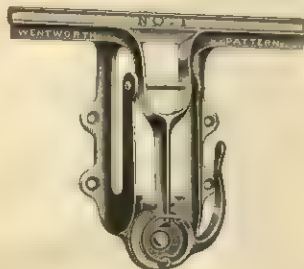
No. 10—Stearns' Adjustable, Heavy Pattern,
9½ inch Jaws, . . . Per Dozen, \$18 00



No. 20

No. 20—Stearns' Ball and Socket Adjust-
ment, 9½ inch Jaws, . . . Per Dozen, \$25 00

SAW VISES OR CLAMPS.



No. 1



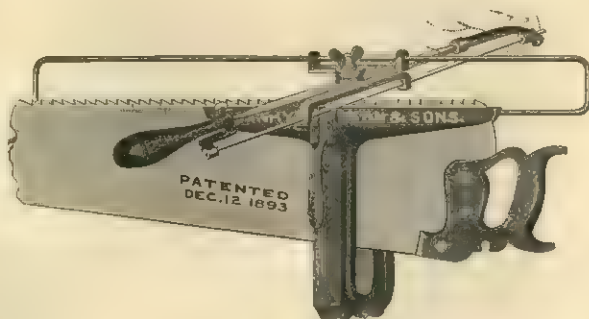
No. 3

WENTWORTH PATTERN.

WITH RUBBER CUSHIONED JAWS, WHICH PREVENT VIBRATION AND MAKES SAW FILING NOISELESS.

No. 1—Wentworth, 11 inch Jaws . . . Per Dozen, \$13 00

No. 3—Wentworth Adjustable, 11 inch Jaws,
Per Dozen. \$18 00



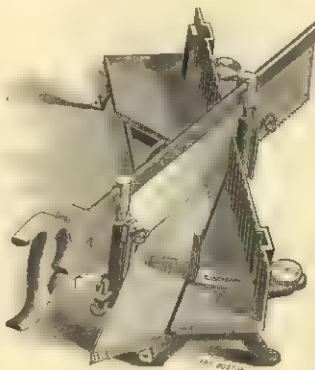
DISSTON'S

No. DS—Disston Saw Filing Vise and Guide, complete with No. 3 Clamp, Filing Guide, File and Handle,
Per Dozen, \$30 00

This Saw Filing Guide is especially designed to assist those not skilled in the art of Saw Filing to file a Saw correctly.

Packed complete One-twelfth Dozen in a wood box.

MITRE BOXES.



IMPROVED NEW LANGDON.

THE IMPROVED NEW LANGDON CUTS (BY USING THE CIRCULAR ARMS OR GUIDES), FROM RIGHT ANGLES TO 75 DEGREES, ON $3\frac{1}{2}$ INCH STUFF; ALSO ADJUSTABLE FOR MITREING CIRCULAR WORK IN PATTERNS, EMERY WHEELS AND SEGMENTS OF VARIOUS KINDS.

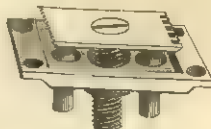
- | | | |
|---------------|---|---------------|
| No. 31 | For wood, 22 x 4, Extension Lever, giving 9 inches width at Right Angles and $6\frac{1}{4}$ inches at Mitre, with 22 inch Disston's Back Saw 4 inches wide under back; weight 30 lbs., | Each, \$11 00 |
| No. 32 | For Wood, 24 x 4; same as No. 31, but with 24 inch Disston's Back Saw ; weight 30 lbs., | Each, 11 50 |
| No. 33 | For Wood, 26 x 4; same as No. 31, but with 26 inch Disston's Back Saw ; weight 32 lbs., | Each, 12 00 |
| No. 34 | For Wood, 28 x 5; same as No. 31, but with 28 inch Disston's Back Saw , 5 inches wide under back, weight 36 lbs., | Each, 14 00 |

Each Mitre Box and its accompanying Saw are adjusted to be used together, and should in no case be changed.

BENCH HOOKS.



MORRILL'S.



SMITH'S.

- | | | | |
|---------------------------------|-------------------|--|-------------------|
| No. 1—Morrill's Perfect, | Per Dozen, \$7 80 | No. 1—Smith's; Adjusted by turning the upright screw in the center, | Per Dozen, \$5 00 |
|---------------------------------|-------------------|--|-------------------|

One-half Dozen in a box.

SAW HANDLES. HAND SAW HANDLES.



No. 4—Panel, Beech, Varnished Edges, ...	Per Dozen, \$1 30
No. 2 Hand, Beech, Varnished Edges, for No. 7 Hand Saw.	Per Dozen, 1 00
No. D8—Hand, Apple Wood, Varnished Edges, ...	Per Dozen, 4 00
No. 12 Hand, Carved Apple Wood, Varnished, ...	Per Dozen, 6 75

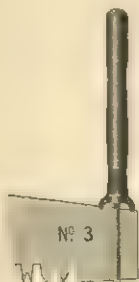
CROSS CUT SAW HANDLES.



No. 100 One Man Cross Cut, Beech, Per Dozen, ...	\$3 75	No. 200 Supplementary Handles, for One Man Saw, ...	Per Dozen, \$2 00
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No. 1—Loop Handle, Per Pair, ... \$0 30



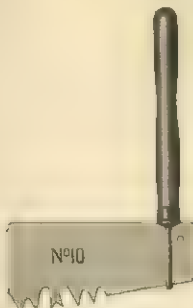
No. 3—Loop Handle, Per Pair, ... \$0 30



No. 6—Loop Handle, Per Pair, ... \$0 40



No. 8—Loop Handle, Per Pair, ... \$0 20

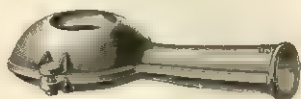


No. 10—Common Loop Handle, Per Pair, \$0 14



No. 11—Climax Reversible Handle, Per Pair, \$0 15

TUYERE IRONS.



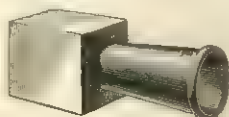
No. 5

No. 5—Duck Nest, Weight 12 lbs., . . . Each, \$0 75



No. 10

No. 10—Duck Nest, Double Facet. Weight 17 lbs., . . . Each, \$1 00



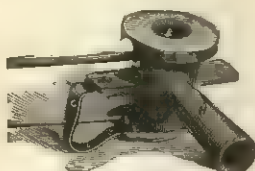
NEGRO HEAD.

Negro Head, {	No.	1	2	3	4	4½
	Weight, lbs.,	11	15	20	28	44
	Each, .	\$0 75	1 00	1 50	2 00	3 00



No. 40.

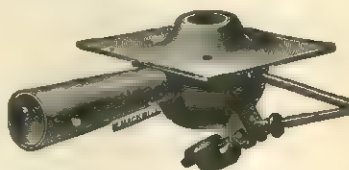
No. 40—Duck Nest, Weight 22 lbs., . . . Each, \$1 40



NORTON'S PATENT.

Norton's Patent—Weight about 27 lbs., . . . Each, \$2 00

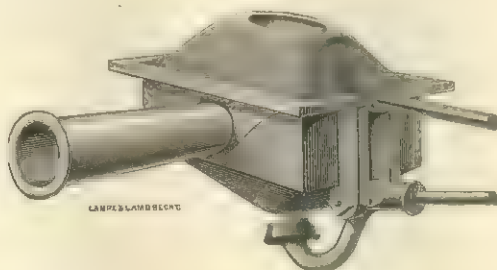
To regulate the blast, turn the large rod; to dump the ashes and cinders, pull out the small rod. Can be used on either the right or left side of fire.



WARREN'S PATENT.

Warren's Patent—Ball Valve, Weight about 30 lbs., . . . Each, \$2 25

The blast is regulated by simply revolving the ball, which has three unequal sides. Open the bottom valve, and all cinders and ashes drop out.

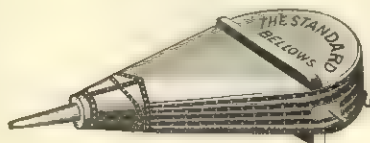


DIAMOND F.

Improved Diamond F.—Weight about 18 lbs.,

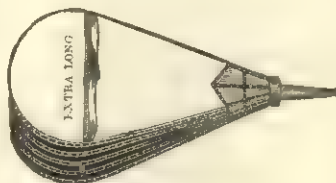
Each, \$2 00

BELLOWS.



STANDARD

Sizes (Across Bellows), inches,	22	24	26	28	30	32	34	36	38	40
Weight Each, lbs.,	33	35	40	45	50	55	65	70	80	90
Each,	\$10.00	10.00	11.00	13.00	18.00	14.00	16.00	18.00	20.00	23.00



STANDARD, EXTRA LONG.

Sizes (Across Bellows), inches,	30	32	34	36	38	40	42	44	46
Weight Each, lbs.,	55	60	75	85	90	95	100	110	120
Each,	\$15.00	17.00	19.00	21.00	24.00	28.00	34.00	40.00	45.00



MOULDERS' BELLOWS.



HAND BELLOWS.

Moulders' {	Sizes, inches,	10	12	14	Hand,	Sizes, inches,	8	9	10
{	Per Dozen,	\$20.00	27.00	33.00	{	Per Dozen,	\$14.00	16.00	18.00

WELDING COMPOUND.



Cherry Heat—In 5 lb. Wood Boxes, ... Per Pound, \$0 22

To effect a Weld at a low heat the Compound must invariably be placed between the parts to be united. It is advisable, however, for all smiths in their first trials of it to take very nearly a borax heat. When they have become accustomed to its use they can gradually reduce the heats till they find the lowest at which they can successfully use it.

CHARCOAL.



YELLOW PINE CHARCOAL.

4 Bushel Barrel. Per Barrel, \$
25 Bushel Cask, ... Per Cask,

BORAX.



REFINED BORAX.

Lump Borax, ... Per Pound, \$
Powdered Borax, ... Per Pound,

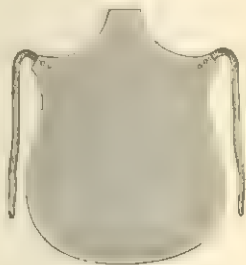
Packed in Sacks, Weight about 85 lbs.

APRONS.



CARPENTERS' APRONS.

No. 1—Carpenters' Aprons, made of Heavy White Duck, Short Pattern, Large Pocket, divided into three parts, Duck Strings at waist,
Per Dozen, \$3 00



BLACKSMITHS' APRONS.

SHEEP SKIN, NO STRAP OR BUCKLE.

Sheep Skin, { Sizes, . . Extra Large. Large. Small.
Each, . . \$1.50 1.25 1.00

RAW HIDE

No. 1/8—With Strap and Buckle, ... Each, \$1 75
No. 1 —Without Strap and Buckle, ... Each, 1 50

BUTTERISES.



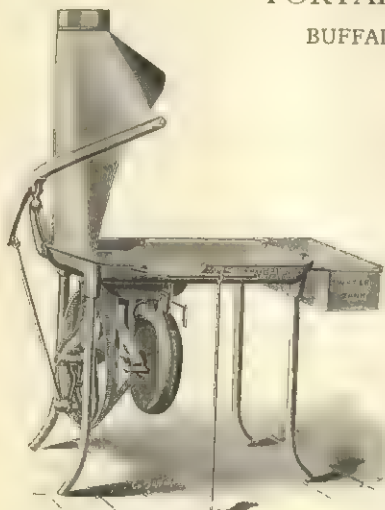
FARRIERS' BUTTERISES.

No. 1280 Farriers' Butterises, Half Polished,

Per Dozen, \$15 00

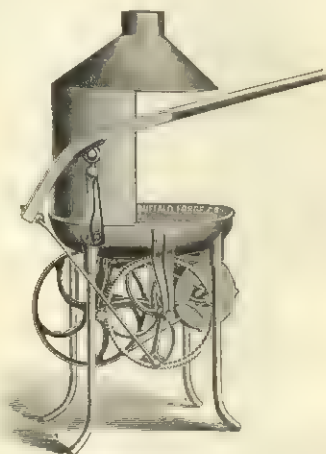
PORTABLE FORGES.

BUFFALO FORGE CO.



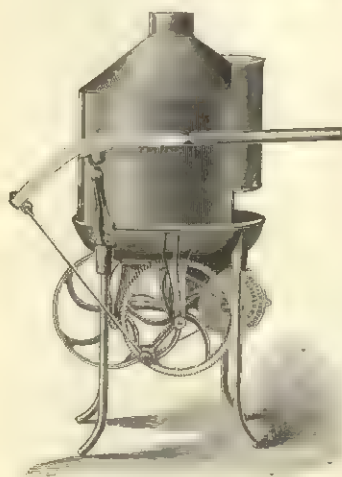
No. 0

No. 0-Blacksmith Hand Forge, with Water Tank and Sheet Steel Hood; a welding heat on 3-inch iron in five minutes, on 1 inch iron in ten minutes; size of Hearth 28x41 inches, 14-inch Fan, Weight 360 lbs. Each, \$54 00



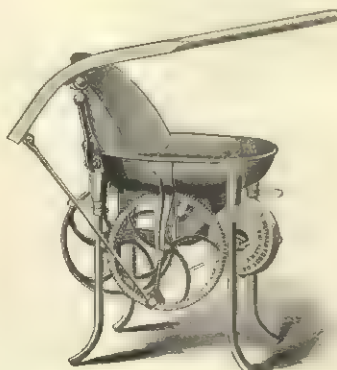
No. 1

No. 1-Machinists' Hand Forge, with half-open Hood; a welding heat on 2½-inch and 3-inch iron in from five to ten minutes, size of Hearth 21x27 inches, 10-inch Fan, Weight 140 lbs., Each, \$40 00



No. 2

No. 2-Machinists' Hand Forge, with Closed Hood; size of Hearth 21x27 inches, 10-inch Fan, Weight 150 lbs., Each, \$42 00



No. 3

No. 3-Bollermakers' Hand Forge, without Hood; size of Hearth 21x27 inches, 10-inch Fan, Weight 140 lbs., Each, \$34 00

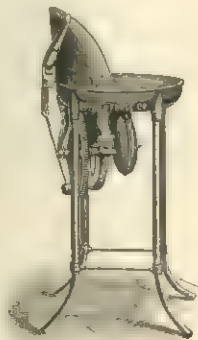
PORTABLE FORGES.

BUFFALO FORGE CO.



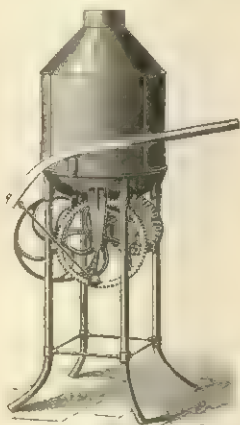
No. 4

No. 4—Tool Makers', with Half-open Hood; size of Hearth 18 inches diameter, 6-inch Fan, produces welding heat of iron $1\frac{1}{2}$ inches in 5 minutes, Weight 80 lbs., . . . Each, \$27 00



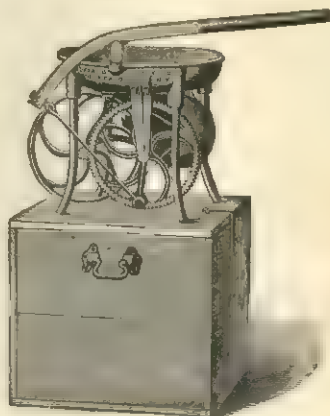
No. 5

No. 5—Riveters', with Dash, size of Hearth 18 inches diameter, 6-inch Fan, Weight 75 lbs. . . . Each, \$24 00



No. 6.

No. 6—Closed Hood; size of Hearth 18 inches diameter, 6-inch Fan, will produce a welding heat on iron $1\frac{1}{2}$ inches in five minutes. Weight 80 lbs., ... Each, \$30 00

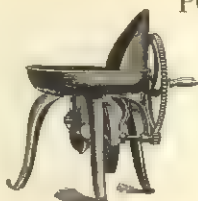


No. 11.

No. 11—Prospectors' Hand Forge, with Case. Height, $17\frac{1}{2}$ inches, size of Hearth 18 inches diameter, 6-inch Fan, ample room in case for full line of tools. Weight complete, with case, 65 lbs., ... Each, \$26 00

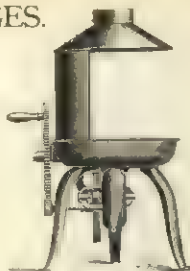
PORTABLE FORGES.

BUFFALO FORGE CO.



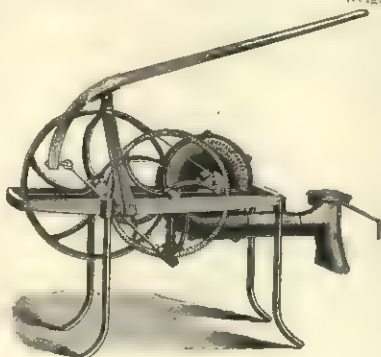
No. 7.

No. 7—Bench Forge, Produces Welding Heat, on 1 inch Iron in Ten Minutes, Hearth 15 inch Diameter, 6 inch Fan, . . . Each, \$10 00
In Case 19 x 19 x 19 inch, . . . Each, 20 00
 Weight 40 Pounds. With Case 55 Pounds.



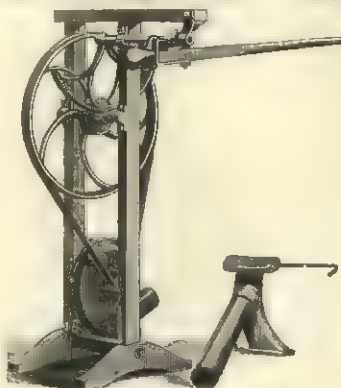
No. 8.

No. 8 Bench Forge, with Half Open Hood, Same Capacity as No. 7, Hearth 15 inch Diameter, 6 inch Fan, . . . Each, \$18 00
 Weight 50 Pounds



No. 4

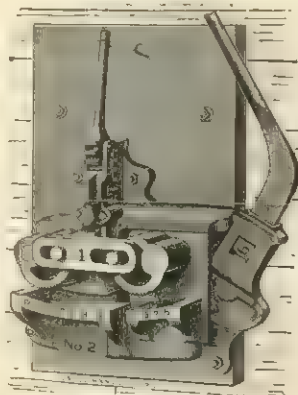
No. 4 —Hand Blower, without Tuyere, Height 35 inches, Length 35 inches, Fan 17 inches, Weight 200 lbs., Each, \$54 00
No. 4 T—Hand Blower, with Tuyere, Height 35 inches, Length 35 inches, Fan 17 inches, Weight 225 lbs., Each, 36 00



No. 3

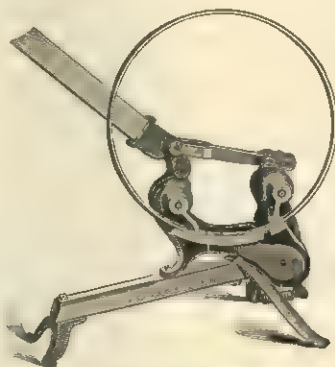
No. 3 Hand Blower, without Tuyere, Right or Left Hand, Height 47 in., Length 28 in., Fan 14 in., Weight 115 lbs., Each, \$23 00
No. 3 T—Hand Blower, with Tuyere, Right or Left Hand, Height 47 in., Length 28 in., Fan 14 in., Weight 130 lbs., Each, 26 00

TIRE SHRINKERS.



STODDARD'S.

- | | |
|-----------------------------------|---------------|
| No. 1—For Upsetting 2-inch Tires, | Each, \$14 00 |
| No. 2—For Upsetting 4-inch Tires, | Each, 22 50 |

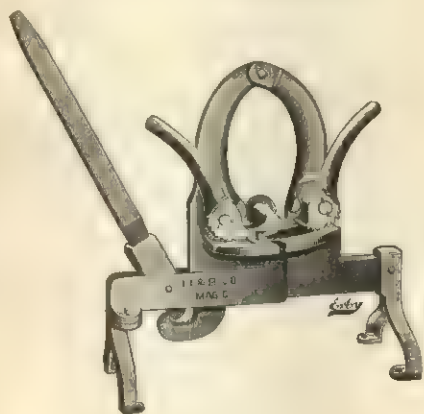


MOLE'S PATENT

- | | |
|---|---------------|
| No. 1—Shrinker, Bed $2\frac{1}{4}$ inches, Weight 150 lbs., | Each, \$10 00 |
| No. 2—Shrinker, Bed 3 inches, Weight 225 lbs., | Each, 15 00 |
| No. 3—Shrinker, Bed 4 inches, Weight 300 lbs., | Each, 18 00 |

The operation of bringing down the lever grasps the tire and does the work; raising the lever opens it.

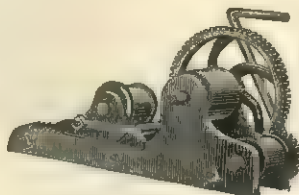
TIRE SHRINKERS.



MAGIC.

Magic—Will shrink tire 3 inches and smaller, Each, \$12 00

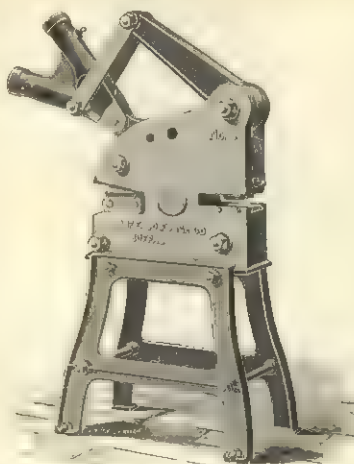
TIRE BENDERS.



GEARED BENDER.

- | | |
|--|---------------|
| No. 2 Geared, will bend $3\frac{1}{4}$ -inch Tire, | Each, \$19 00 |
| Will bend to 30-inch circle or over. | |

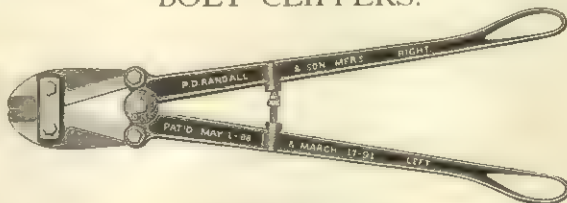
COMBINED PUNCH AND SHEARS.



BUFFALO PUNCH SHEAR AND BAR CUTTER COMBINED.

	Punch.	Shear.	Punch.	Cut-off.	Weights. Each.
No. 1—Combined,	1/4 in. strap iron, 1 1/2 in. wide,	1/4 in. strap iron, 2 in. wide,	1/4 in. in 1/2 in. iron,	0 to 3/8 in. round iron,	30 lbs., \$40 00
No. 2—Combined,	1/4 in. strap iron, 2 in. wide,	1/4 in. strap iron, 2 in. wide,	1/4 in. in 1/2 in. iron,	1/4 to 3/8 in. round iron,	175 lbs., 50 00
No. 3—Combined,	1/4 in. strap iron, 2 in. wide,	1/4 in. strap iron, 2 in. wide,	1/4 in. in 1/2 in. iron,	3/8 to 1 in. round iron,	425 lbs., 70 00
No. 4—Combined,	1/4 in. strap iron, 2 in. wide,	1/4 in. strap iron, 2 in. wide,	1/4 in. in 1/2 in. iron,	1 to 1 1/2 in. round iron,	530 lbs., 100 00

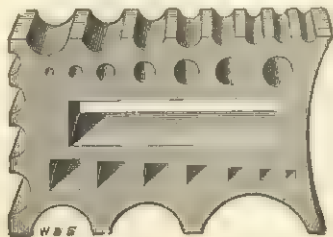
BOLT CLIPPERS.



PORTER'S EASY BOLT

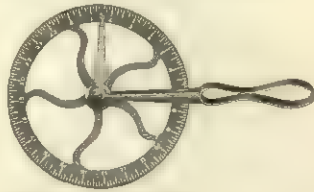
No. 1—Easy, Length 24 inches, for Cutting 3/8 inch Bolts, Weight 11 1/2 lbs.,	Each, \$5 00
No. 2—Easy, Length 30 inches, for Cutting 1/2 inch Bolts, Weight 7 1/2 lbs.,	Each, 7 00
No. 3—Easy, Length 30 inches, for Cutting 5/8 inch Bolts, Weight 11 1/2 lbs.,	Each, 9 00

SWAGE BLOCKS.



No. 1—Swage Block, Size 19 1/2 x 14 x 4 inches, Weight about 153 lbs., Per Pound, \$0 05

GREEN RIVER TIRE-MEASURING WHEEL.



GRADUATED WHEEL

No. 606 Graduated, Figures and Lines are Raised Above the Surface of Wheel, Circumference 24 inches, Each, \$1 50

DRILLS.



No. 1.

No. 1—Jappanned Blacksmiths' Tire Drill, . . . Each, \$2 50

Weight, 30 lbs.

SILVER'S DRILLS.

No. 1—Single Geared, Hand Feed drills, $\frac{1}{4}$ inch to center of 12 inch circle; drill spindle is 1 inch steel, same as No. 2, and bored for $\frac{1}{8}$ inch straight shank drills. Feed has run of 3 inches. Upright column and feed screw are of best Steel, ... Each, \$6 00

Weight, 55 lbs.

No 1 SILVER'S.

No. 2—Double Geared, Self Feed, Has extension crank and adjustable feed; drills 0 to 1 inch holes, and to center of $14\frac{1}{2}$ inch circle. Feed has run of 3 inches, ... Each, \$10 00

Weight, 100 lbs.

No. 3—Double Geared, Self Feed, Has extension crank and variable feed; drills 0 to $1\frac{1}{4}$ inch holes and to center of 16 inch circle. Feed has run of 3 inches, ... Each, \$14 00

Weight, 140 lbs.

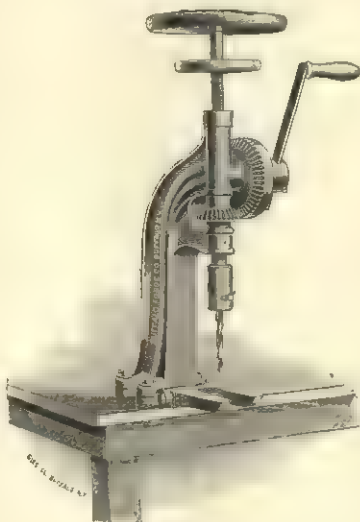
Above Drills Take Bits with $\frac{1}{2}$ Inch Shank.

See Page 189.

No 2 SILVER'S

No 3, SILVER'S

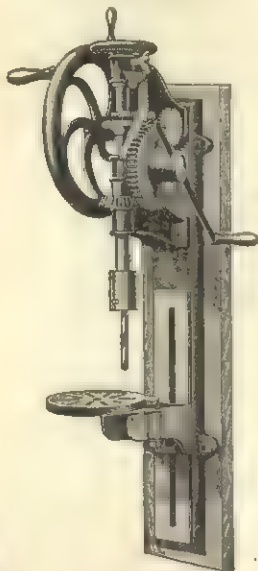
DRILLS.



No. 69. BUFFALO

No. 69—Buffalo, Blacksmiths' Hand Feed Drill; Length, **28** inches; Capacity, from **1 8** to **7/8** inch, Drills to center of **10** inch circle. Run of feed **3 1/2** inches. Each, \$15 00

Weight, 50 lbs.



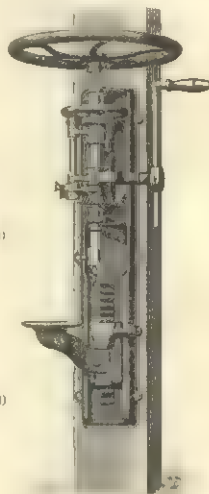
No. 66. BUFFALO.

No. 66—Buffalo Hand Drill Length, **37** inches, Capacity, **1** inch hole; Drills to center of **15** inch circle. Run of Feed **3 1/2** inches. Each, \$22 00

Weight, 100 lbs.

No. 22—Green River; Capacity, **1** inch hole; Drills center of **15** inch circle. Run of feed **3** inches. Swing Table can be raised or lowered **14** inches. Drill bit should have **1/2** inch shank to fit chuck. Each, \$20 00

Weight boxed, 180 lbs.



No. 22. GREEN RIVER.

POCKET KNIVES.

GEO. WOSTENHOLM & SON'S I*XL.

Illustrations Full Size.



No. 17020, WOSTENHOLM.

No. 17020—Wostenholm's I*XL, 3 Blades, Stag Handles, Brass Lined, ... Per Dozen, \$23 00



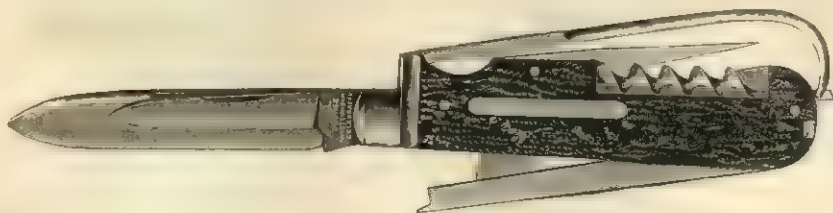
No. 17024, WOSTENHOLM.

No. 17024—Wostenholm's I*XL, 3 Blades, Etched, Stag Handles, Brass Lined, ... Per Dozen, \$28 00



No. 14691, WOSTENHOLM.

No. 14691—Wostenholm's I*XL, 3 Blades, Stag Handles, Brass Lined, ... Per Dozen, \$29 00



No. 13950, WOSTENHOLM.

No. 13950—Wostenholm's I*XL, Sportsman's Knives, Stag Handles, 2 Blades and Combination, Iron Lined, ... Per Dozen, \$38 00



No. 17063, WOSTENHOLM.

No. 17063—Wostenholm's I*XL, Hunting Knives, 1 Blade, Stag Handles, Lock Back, Iron Lined, ... Per Dozen, \$17 00
Packed One-half Dozen in a box.

POCKET KNIVES.

GEO. WOSTENHOLM & SON'S I-XL.

Illustrations Full Size



No. 17009, WOSTENHOLM.

No. 17009—Wostenholm's I-XL, 2 Blades, Stag Handles, Iron Lined, Steel Bolsters, German Silver Caps, Per Dozen, \$17 00



No. 17095, WOSTENHOLM.

No. 17095—Wostenholm's I-XL, 2 Blades, Stag Handles, Brass Lined, German Silver Bolsters . Per Dozen, \$17 00



No. 2043, WOSTENHOLM.

No. 2043—Wostenholm's I-XL, 2 Blades, Stag Handles, Brass Lined, German Silver Bolsters, . Per Dozen, \$17 00



No. 16148, WOSTENHOLM.

No. 16148—Wostenholm's I-XL, 2 Blades, Ebony Handles, Brass Lined, German Silver Bolsters, . Per Dozen, \$18 00

No. 16485 Wostenholm's I-XL, 2 Blades, Genuine Stag Handles, Brass Lined, German Silver Bolsters, . Per Dozen, 22 00



No. 17013, WOSTENHOLM.

No. 17013—Wostenholm's I-XL, 2 Blades, Stag Handles, Brass Lined, German Silver Bolsters, . Per Dozen, \$23 00

Packed One-half Dozen in a box.

POCKET KNIVES.

GEO. WOSTENHOLM & SON'S I*XL.

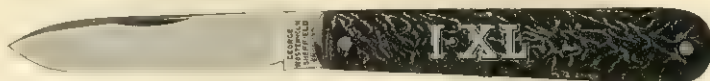
Illustrations Full Size.



No. 20, WOSTENHOLM.

No. 20—Wostenholm's I*XL, Barlows,	1 Blade, Spear Points, Bone Handles,	Per Dozen, \$4 50
No. 22—Wostenholm's I*XL, Barlows,	2 Blades, Spear Points, Bone Handles,	Per Dozen, 6 50
No. 23—Wostenholm's I*XL, Barlows,	2 Blades, Clip Points, Bone Handles,	Per Dozen, 6 50

Packed One Dozen in a box.



No. 50, WOSTENHOLM.

No. 50—Wostenholm's I*XL, 1 Blade, Spear Points, Iron Handles,	Per Dozen, \$2 50
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Packed One Dozen in a box.



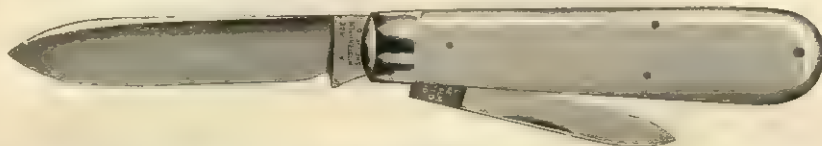
No. 8019, WOSTENHOLM.

No. 8018—Wostenholm's I*XL, 1 Blade, Spear Points, Iron Handles,	Per Dozen, \$5 50
No. 8019—Wostenholm's I*XL, 2 Blades, Spear Points, Iron Handles,	Per Dozen, 9 00
No. 8013—Wostenholm's I*XL, 2 Blades, Clip Points, Iron Handles,	Per Dozen, 9 00
No. 7967—Wostenholm's I*XL, 2 Blades, Sheepfoot Points, Iron Handles,	Per Dozen, 9 00



No. 11169, WOSTENHOLM.

No. 11169—Wostenholm's I*XL, 2 Blades, Speyng Points, Iron Handles,	Per Dozen, \$9 00
No. 13786—Wostenholm's I*XL, 1 Blade, Speyng Points, Iron Handles,	Per Dozen, 5 50



No. 7002, WOSTENHOLM.

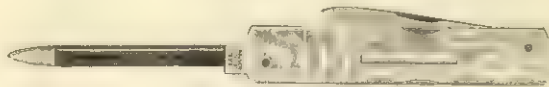
No. 7002—Wostenholm's I*XL, 2 Blades, Ebony Handles, Brass Lined, German Silver Bolsters,	Per Dozen, \$11 00
No. 7005—Wostenholm's I*XL, 2 Blades, Stag Handles, Brass Lined, German Silver Bolsters,	Per Dozen, 12 00
No. 6982—Wostenholm's I*XL, 2 Blades, Ebony Handles, Iron Lined, Steel Bolsters, 3 3/4 inch,	Per Dozen, 9 50
No. 6984—Wostenholm's I*XL, 2 Blades, Stag Handles, Iron Lined, Steel Bolsters, 3 3/4 inch,	Per Dozen, 10 00

Packed One-half Dozen in a box.

POCKET KNIVES.

GEO. WOSTENHOLM & SON'S I*XL.

Illustrations Full Size



No. 9258, WOSTENHOLM.

No. 9255—Wostenholm's I*XL, 1 Blade and File, **Genuine Stag** Handles, Brass Lined,
 No. 9258—Wostenholm's I*XL, 1 Blade and File, **Pearl** Handles, Brass Lined,

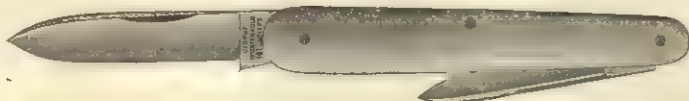
Per Dozen, \$18 00
 Per Dozen, 22 00



No. 14659, WOSTENHOLM.

No. 14659—Wostenholm's I*XL, 2 Blades, **Genuine Stag** Handles, German Silver Bolsters, Brass Lined,

Per Dozen, \$22 00



No. 2018, WOSTENHOLM.

No. 2018—Wostenholm's I*XL, 2 Blades, **Ivory** Handles, Brass Lined,
 No. 2060—Wostenholm's I*XL, 2 Blades, **Stag** Handles, Brass Lined,
 No. 2044—Wostenholm's I*XL, 2 Blades, **Pearl** Handles, Brass Lined,

Per Dozen, \$13 00
 Per Dozen, 13 00
 Per Dozen, 2, 00



No. 2068, WOSTENHOLM.

No. 2064—Wostenholm's I*XL, 2 Blades, **Stag** Handles, Brass Lined, German Silver Tipped
 No. 2068—Wostenholm's I*XL, 2 Blades, **Pearl** Handles, Brass Lined, German Silver Tipped,

Per Dozen, \$15 00
 Per Dozen, 26 00



No. 2061, WOSTENHOLM.

No. 2015—Wostenholm's I*XL, 3 Blades, **Ivory** Handles, Brass Lined,
 No. 2061—Wostenholm's I*XL, 3 Blades, **Stag** Handles, Brass Lined,

Per Dozen, \$18 00
 Per Dozen, 18 00



No. 2070, WOSTENHOLM.

No. 2065—Wostenholm's I*XL, 3 Blades, **Stag** Handles, Brass Lined, German Silver Tipped,
 No. 2070—Wostenholm's I*XL, 3 Blades, **Pearl** Handles, Brass Lined, German Silver Tipped,

Per Dozen, \$22 00
 Per Dozen, 36 00

Packed One-half Dozen in a box.

POCKET KNIVES.

GEO. WOSTENHOLM & SON'S I.XL.

Illustrations Full Size



No. 2106, WOSTENHOLM.

No. 2106—Wostenholm's I.XL, Ladies' Knives, **Pearl** Handles, 2 Blades, Brass Lined, German Silver Tipped.
Per Dozen, \$18 00



No. 5805, WOSTENHOLM.

No. 5805—Wostenholm's I.XL, Ladies' Knives, **Pearl** Handles, 2 Blades, Brass Lined, . . . Per Dozen, \$22 00



No. 16203, WOSTENHOLM.

No. 16203—Wostenholm's I.XL, 2 Blades, **Pearl** Handles, Brass Lined, . . . Per Dozen, \$28 00



No. 2118, WOSTENHOLM.

No. 2118—Wostenholm's I.XL, 2 Blades, **Pearl** Handles, Brass Lined, German Silver Tipped, . . . Per Dozen, \$25 00



No. 2136, WOSTENHOLM.

No. 2136—Wostenholm's I.XL, 2 Blades, **Stag** Handles, Brass Lined, German Silver Bolsters, . . . Per Dozen, \$14 00



No. 2148, WOSTENHOLM.

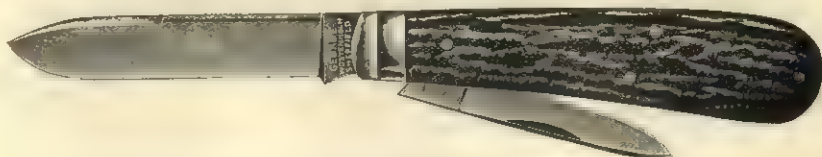
No. 2148—Wostenholm's I.XL, 2 Blades, **Stag** Handles, Brass Lined, German Silver Bolsters, . . . Per Dozen, \$20 00

Packed One-half Dozen in a box.

POCKET KNIVES.

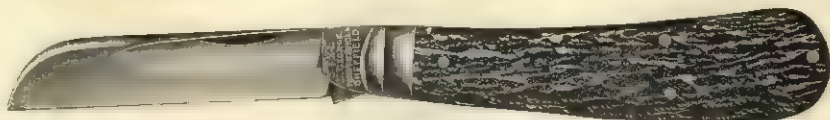
GEO. WOSTENHOLM & SON'S I-XL.

Illustrations Full Size.



No. 7033, WOSTENHOLM.

- | | |
|--|--------------------|
| No. 7033—Wostenholm's I-XL, 2 Blades, Spear Points, Stag Handles, Iron Lined. | Per Dozen, \$13 00 |
| No. 16114—Wostenholm's I-XL, 2 Blades, Ollp Points, Stag Handles, Iron Lined, | Per Dozen, 13 00 |
| No. 7030—Wostenholm's I-XL, 2 Blades, Spear Points, Stag Handles, Iron Lined, $3\frac{3}{8}$ -inch. | Per Dozen, 12 50 |
| No. 13937—Wostenholm's I-XL, 2 Blades, Spear Points, Stag Handles, Iron Lined, $3\frac{3}{8}$ -inch, | Per Dozen, 14 00 |



No. 6926, WOSTENHOLM.

- | | |
|---|--------------------|
| No. 6926—Wostenholm's I-XL, 2 Blades, Sheepfoot Points, Stag Handles, Iron Lined, | Per Dozen, \$13 00 |
|---|--------------------|



No. 11810, WOSTENHOLM.

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|--|--------------------|
| No. 11810—Wostenholm's I-XL, 2 Blades, Buffalo Handles, Brass Lined, German Silver Bolsters. | Per Dozen, \$14 00 |
|--|--------------------|



No. 17003, WOSTENHOLM.

- | | |
|---|--------------------|
| No. 17003—Wostenholm's I-XL, 2 Blades, Stag Handles, Brass Lined, German Silver Bolsters. | Per Dozen, \$17 00 |
|---|--------------------|



No. 14076, WOSTENHOLM.

- | | |
|---|--------------------|
| No. 14076—Wostenholm's I-XL, 2 Blades, Spear and Spying Points, Stag Handles, Iron Lined, | Per Dozen, \$17 00 |
| Packed One-half Dozen in a box. | |

POCKET KNIVES.

GEO. WOSTENHOLM & SON'S I-XL.

Illustrations Full Size



No. 15658, WOSTENHOLM.

- No. 15656 - Wostenholm's I-XL, 2 Blades, **Stag** Handles, Champagne Hooks and Cork Screws, Brass Lined,
Per Dozen, \$43 00
- No. 15658 - Wostenholm's I-XL, 2 Blades, **Pearl** Handles, Champagne Hooks and Cork screws, Brass Lined,
Per Dozen, 48 00



No. 16584, WOSTENHOLM.

- No. 16584 - Wostenholm's I-XL, Office Knives, 2 Blades, **Ivory** Handles, Brass Lined, ... Per Dozen, \$16 00



No. 7940, WOSTENHOLM.

- No. 7940 - Wostenholm's I-XL, Budding Knives, 1 Blade, **Ivory** Handles, ... Per Dozen, \$18 00



No. 7691, WOSTENHOLM.

- No. 7691 - Wostenholm's I-XL, 1 Blade, **Buffalo** Handles, Ivory Badders, Brass Lined, ... Per Dozen, \$14 00



No. 12825, WOSTENHOLM

- No. 12825 - Wostenholm's I-XL, Corn Knives, 1 Blade, **Ivory** Handles, Brass Lined, ... Per Dozen, \$14 00

Packed One-half Dozen in a box.

For Witte's Corn Knives and Razors, see page 1446.

POCKET KNIVES.

GEO. WOSTENHOLM & SON'S I-XL.

Illustrations Full Size.



No. 15405, WOSTENHOLM.

No. 15405—Wostenholm's I-XL, 3 Blades, Pearl Handles, Brass Lined, German Silver Tipped, . . . Per Dozen, \$38 00

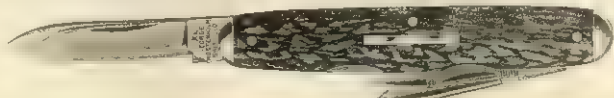


No. 2146, WOSTENHOLM.

No. 2146—Wostenholm's I-XL, 4 Blades, Stag Handles, Brass Lined, German Silver Tipped, . . . Per Dozen, \$26 00



No. 16578, WOSTENHOLM.

No. 16578—Wostenholm's I-XL, 4 Blades, Stag Handles, Brass Lined, German Silver Bolsters, . . . Per Dozen, \$26 00
No. 16580—Wostenholm's I-XL, 4 Blades, Pearl Handles, Brass Lined, German Silver Bolsters, . . . Per Dozen, 30 00

No. 14392, WOSTENHOLM.

No. 14392 Wostenholm's I-XL, 4 Blades, Stag Handles, Brass Lined, German Silver Tipped, . . . Per Dozen, \$33 00
No. 14396 Wostenholm's I-XL, 4 Blades, Pearl Handles, Brass Lined, German Silver Tipped, . . . Per Dozen, 40 00

No. 14048, WOSTENHOLM.

No. 14048 Wostenholm's I-XL, 3 Blades, Pearl Handles, Crocus Polished and Etched, Brass Lined, . . . Per Dozen, \$38 00
No. 14051 Wostenholm's I-XL, 3 Blades, Genuine Stag Handles, Crocus Polished and Etched, Brass Lined, . . . Per Dozen, 29 00

No. 16818, WOSTENHOLM.

No. 16818 Wostenholm's I-XL, 3 Blades, Pearl Handles, Brass Lined, . . . Per Dozen, \$42 00
Packed One-half Dozen in a box.

POCKET KNIVES.

GEO. WOSTENHOLM & SON'S I*XL.

Illustrations Full Size



No. 7219, WOSTENHOLM.

No. 7219 —Wostenholm's I*XL, Physicians', 2 Blades, **Buffalo** Handles, Full Crocus Polished, Brass Lined, Per Dozen. \$23 00
 No. 17005 Wostenholm's I*XL, Physicians', 2 Blades, **Stag** Handles, Full Crocus Polished, Brass Lined, Per Dozen. 22 00



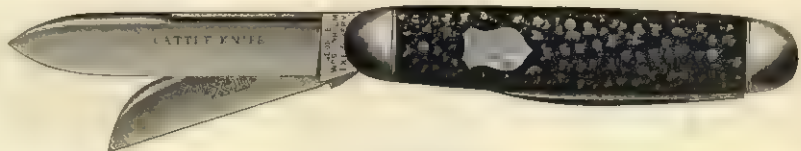
No. 2176, WOSTENHOLM.

No. 2176 Wostenholm's I*XL, 2 Blades, Large Spear and Clip Points, **Stag** Handles, Brass Lined. Per Dozen, \$23 00



No. 2055, WOSTENHOLM.

No. 2055—Wostenholm's I*XL, 3 Blades, **Stag** Handles, Brass Lined, ... Per Dozen, \$23 00



No. 2054, WOSTENHOLM.

No. 2054 Wostenholm's I*XL, 3 Blades, **Cattle Knives**, **Stag** Handles, Brass Lined, ... Per Dozen, \$28 00



No. 16702, WOSTENHOLM.

No. 16702 Wostenholm's I*XL, 3 Blades, **Cattle Knives**, **Stag** Handles, Brass Lined, ... Per Dozen \$30 00

Packed One-half Dozen in a box.

POCKET KNIVES.

GEO. WOSTENHOLM & SON'S I-XL.

Illustrations Full Size.



No. 2153, WOSTENHOLM

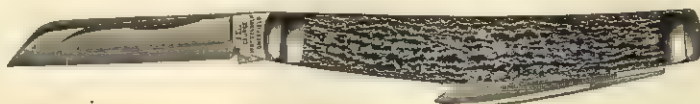
No. 2153—Wostenholm's I-XL, 2 Blades, Stag Handles, Brass Lined, Per Dozen, \$12 00



No. 2154, WOSTENHOLM.

No. 2154—Wostenholm's I-XL, 2 Blades, Stag Handles, Brass Lined, Per Dozen, \$13 00

No. 2180—Wostenholm's I-XL, 3 Blades, File Blade, Stag Handles, Brass Lined, Per Dozen, 21 00



No. 2160, WOSTENHOLM.

No. 2160—Wostenholm's I-XL, Congress, Stag Handles, 4 Blades, File Blade, Brass Lined, Per Dozen, \$33 00

No. 2163—Wostenholm's I-XL, Congress, Stag Handles, 4 Blades, File Blade, Brass Lined, 4 1/4-inch, Per Dozen, 27 00



No. 2193, WOSTENHOLM.

No. 2192—Wostenholm's I-XL, Congress, Stag Handles, 4 Blades, Tobacco Blade, Brass Lined, 3 1/2-inch, Per Dozen, \$28 00

No. 2193—Wostenholm's I-XL, Congress, Stag Handles, 4 Blades, Tobacco Blade, Brass Lined, 3 1/2-inch, Per Dozen, 27 00

No. 2194—Wostenholm's I-XL, Congress, Stag Handles, 4 Blades, Tobacco Blade, Brass Lined, 4 1/2-inch, Per Dozen, 28 00



No. 15523, WOSTENHOLM.

No. 15523—Wostenholm's I-XL, Congress, Genuine Stag Handles, 4 Blades, Tobacco Blade, German Silver Bolsters, Brass Lined, 4-inch, Per Dozen, \$31 00

No. 17083—Wostenholm's I-XL, Congress, Stag Handles, 4 Blades, Tobacco Blade, German Silver Bolsters, Brass Lined, 3 1/4-inch, Per Dozen, 27 00

Packed One-half Dozen in a box.

WROUGHT IRON TUMBLER PADLOCKS.

Illustrations Half Size.



No. 00000.

SELF-LOCKING, SPRING SHACKLE,
FANCY KEY.

No. 00000— / Keys, . 1 2
2-inch, { Per Dozen, \$1.95 2.20



No. 0000.

ONE WHEEL, FANCY KEY.

No. 0000— / Keys, . 1 2
2-inch, { Per Dozen, \$1.30 2.10



No. 000.

ONE WHEEL, WROUGHT IRON SHACKLE
AND BOLT.

No. 000— / Keys, . 1 2
2 1/2-inch, { Per Dozen, \$3.70 3.05

Packed One Dozen in a box.



No. 00.

BRASS DROP, ONE WHEEL, WROUGHT
IRON SHACKLE AND BOLT.

No. 00— / Keys, . 1 2
2 1/4-inch, { Per Dozen, \$3.25 3.75



No. 0.

BRASS DROP, RAISED BUSHING, ONE
WHEEL AND SIDE WARD.

No. 0— / Keys, . 1 2
2 1/4-inch, { Per Dozen, \$3.40 3.90

Packed One Dozen in a box.



No. 1.

BRASS DROP, RAISED BUSHING, ONE
WHEEL AND SIDE WARD.

No. 1— / Keys, . 1 2
2 1/2-inch, { Per Dozen, \$4.00 4.50



No. 2.

BRASS DROP, RAISED BUSHING, ONE
WHEEL AND SIDE WARD.

No. 2— / Keys, . 1 2
2 1/2-inch, { Per Dozen, \$4.40 5.00



No. 3.

BRASS DROP, RAISED BUSHING, ONE
WHEEL AND SIDE WARD.

No. 3— / Keys, . 1 2
2 3/4-inch, { Per Dozen, \$4.65 5.50

Packed One Dozen in a box.



No. 4.

BRASS DROP, RAISED BUSHING, ONE
WHEEL AND SIDE WARD.

No. 4— / Keys, . 1 2
2 3/4-inch, { Per Dozen, \$5.20 6.40

For Numerical Index, see page 812.

WROUGHT IRON TUMBLER PADLOCKS.

Illustrations Half Size.



No. 1000.

BRASS DROP AND BUSHING, THREE SOLID BRASS WHEELS.
 No. 1000— $2\frac{1}{4}$ -inch, { Keys, . . . 1 2
 { Per Dozen, . . . \$5.00 6.25
 Packed One Dozen in a box.



No. 1001.

BRASS DROP AND BUSHING, CYLINDRICAL KEY.
 No. 1001— $2\frac{1}{4}$ -inch, { Keys, . . . 1 2
 { Per Dozen, . . . \$8.25 7.50
 Packed One-half Dozen in a box.



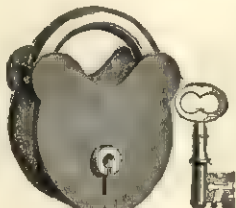
No. 1002.

BRASS DROP AND BUSHING, TWO SOLID BRASS WHEELS,
 TWO TUMBLERS, TWELVE CHANGES.
 No. 1002— $2\frac{1}{4}$ -inch, { Keys, . . . 1 2
 { Per Dozen, . . . \$9.90 11.15
 Packed One-half Dozen in a box.



No. 1003.

BRASS DROP AND BUSHING, SOLID BRASS WHEEL, BRIDGE
 WARD, BRASS KEY.
 No. 1003— $2\frac{1}{4}$ -inch, { Key, ... 1
 { Per Dozen, ... \$7.90



No. 1005.

BRASS BUSHED, THREE SOLID BRASS WHEELS, BRIDGE
 WARD, NICKEL PLATED SHACKLE, BRASS KEY,
 TWELVE CHANGES.
 No. 1005— $2\frac{1}{4}$ -inch, { Keys, . . . 1 2
 { Per Dozen, . . . \$7.75 10.00
 Packed One-half Dozen in a box.



No. 1006.

BRASS BUSHED, SOLID BRASS WHEEL, SIDE WARD, DOUBLE
 CHAMBER AND DOUBLE BITTED KEY.
 No. 1006— $2\frac{1}{4}$ -inch, { Key, ... 1
 { Per Dozen, ... \$8.70

For Numerical Index, see page 812.

WROUGHT IRON TUMBLER PADLOCKS.

Illustrations Half Size.



No. 1008.

BRASS DROP AND BUSHING, THREE SOLID BRASS WHEELS.

No. 1008—3-inch,	{ Keys,	1	
	{ Per Dozen,	\$9.30	2 10.80

Packed One-half Dozen in a box.



No. 1021.

BRASS BUSHING, CYLINDRICAL KEY

No. 1021—2¼-inch,	{ Keys,	1	
	{ Per Dozen,	\$3.75	2 4.50

Packed One Dozen in a box.



No. 1025.

BRASS DROP AND BUSHING, SOLID BRASS WHEEL, SIDE WARD, SPRING LOCKING, SPRING SHACKLE, TWELVE CHANGES.

No. 1025—2½-inch,	{ Keys,	1	
	{ Per Dozen,	\$6.00	2 8.10

Packed One-half Dozen in a box.



No. 1026.

BRASS BUSHING, ONE WHEEL AND SIDE WARD, WROUGHT IRON SHACKLE AND BOLT, TWELVE CHANGES.

No. 1026—2¼-inch,	{ Keys,	1	
	{ Per Dozen,	\$4.75	2 6.00

Packed One Dozen in a box.



No. 1028.

SELF-LOCK, BRASS DROP AND BUSHING, FOUR WARDS, SELF-LOCKING, SPRING SHACKLE, FLAT STEEL KEY, TWELVE CHANGES.

No. 1028—2½-inch,	{ Keys,	1	
	{ Per Dozen,	\$7.00	2 8.00

Packed One-half Dozen in a box.



No. 1029.

BRASS DROP AND BUSHING, ONE WHEEL WARD, REVOLVING KEY PIN, FLAT STEEL KEY

No. 1029—2½-inch,	{ Keys,	1	
	{ Per Dozen,	\$5.45	2 6.45

For Numerical Index, see page 812.

WROUGHT IRON TUMBLER PADLOCKS.

Illustrations Half Size



No. 1030.

No. 1030—One Key, $2\frac{1}{4}$ -inch, Brass Drop and Bushing, One Wheel Ward, Revolving Key Pin, Flat Steel Key, Per Dozen, \$6 70

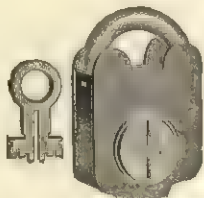


No. 1033.

BRASS BUSHING, DOUBLE CHAMBER, ONE WHEEL WARD, REVOLVING KEY PIN, DOUBLE BITTED FLAT STEEL KEY.

No. 1033— $2\frac{1}{4}$ -inch, { Keys, 1 2
Per Dozen, \$7 90 0.20

Packed One-half Dozen in a box.



No. 1043.

BRASS BUSHING, ONE WHEEL WARD, DOUBLE CHAMBER, REVOLVING KEY PIN, DOUBLE BITTED FLAT STEEL KEY.

No. 1043 $2\frac{1}{4}$ -inch, { Keys, 1 2
Per Dozen, \$6.70 7.35



No. 1048.

BRASS DROP AND BUSHING, ONE WHEEL WARD, SELF-LOCKING, SPRING SHACKLE.

No. 1048— $2\frac{1}{4}$ -inch, { Keys, 1 2
Per Dozen, \$4 75 6.00

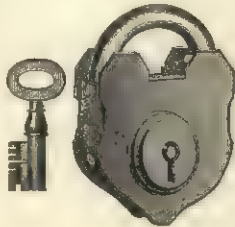
Packed One-half Dozen in a box.



No. 1052.

BRASS DROP AND BUSHING, ONE WHEEL WARD, REVOLVING KEY PIN, FLAT STEEL KEY, SELF-LOCKING SPRING SHACKLE.

No. 1052— $2\frac{1}{4}$ -inch, { Keys, 1 2
Per Dozen, \$6 25 7.35



No. 1056.

BRASS BUSHING, WHEEL, SIDE AND BRIDGE WARDS, FANCY WIDE BIT KEYS, TWELVE CHANGES.

No. 1056— $2\frac{1}{4}$ -inch, { Keys, 1 2
Per Dozen, \$7.25 8.50

Packed One-half Dozen in a box.

For Numerical Index, see page 812.

WROUGHT IRON TUMBLER PADLOCKS.

Illustrations Half Size.



No. 16.

EIGHT-INCH JAPANNED COIL CHAIN,
BRASS DROP, RAISED BUSHING, ONE
WHEEL AND SIDE WARD,
WROUGHT IRON BOLT.

No. 16— { Keys, . 1 2
2½-inch, { Per Dozen, \$5.20 6.00

Packed One Dozen in a box.



No. 1042.

EIGHT-INCH JAPANNED COIL CHAIN,
BRASS DROP AND BUSHING, SIDE
WARD, SOLID BRASS WHEEL,
SELF-LOCKING, SPRING
SHACKLE, TWELVE
CHANGES.

No. 1042— { Keys, . 1 2
2½-inch, { Per Dozen, \$9.25 10.75

Packed One-half Dozen in a box.



No. 1046.

EIGHT-INCH JAPANNED COIL CHAIN,
FANCY ENGRAVED DROP, BRASS BUSH-
ING, ONE WHEEL WARD, DOUBLE
CHAMBER REVOLVING PIN,
DOUBLE BITTED FLAT STEEL
KEY, SELF-LOCKING,
SPRING SHACKLE.

No. 1046— { Keys, . 1 2
2½-inch, { Per Dozen, \$11.25 12.75

Packed One-half Dozen in a box.

SCANDINAVIAN PADLOCKS.



No. 2010.

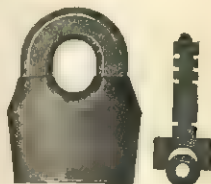
No. 2010—Two Keys, 1½-
inch, Malleable Iron Shack-
les, Extra Finish, Japanned
Cases, Wrought Iron
Tumblers, Flat Steel Keys,
Per Dozen, \$7 00



No. 2011.

No. 2011—Two Keys, 1½-
inch, Malleable Iron Shack-
les, Extra Finish, Japanned
Cases, Wrought Iron Tum-
blers, Flat Steel Keys,
Per Dozen, \$7 85

Packed One-half Dozen in a box.



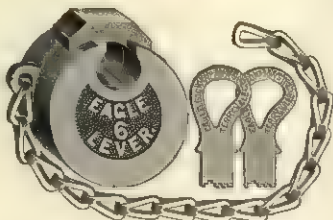
No. 2012.

No. 2012—Two Keys, 2¼-
inch, Malleable Iron Shack-
les, Extra Finish, Japanned
Cases, Wrought Iron Tum-
blers, Flat Steel Keys,
Per Dozen, \$9 25

For Numerical Index, see page 812.

PADLOCKS.

Illustrations Half Size.



No. 04079/C.

No. 04079/C—2½-inch, Cast Bronze, Jiggered Finish, Self-locking, Spring Shackles, Six Secure Levers, Two Nickel Plated Flat Steel Push Keys, Heavy Bronze Chain 9 inches in Length, Per Dozen, \$11 00



No. 04079.

No. 04079—2½-inch, Cast Bronze, Jiggered Finish Self-locking, Spring Shackles, Six Secure Levers, Two Nickel Plated Flat Steel Push Keys, . . . Per Dozen, \$9 00

Packed One-half Dozen in a box.



No. 4059.

No. 4059—9-inch, Corrugated Steel Cases, Antique Silver Finish, Heavy Cast Brass Spring Shackles, Self-locking, Four Secure Levers, Two Nickel Plated Flat Steel Keys, . . . Per Dozen, \$10 00



Nos. 4122 AND 4122 1/4.

SELF-LOCKING, SPRING SHACKLE, EIGHT SECURE LEVERS, TWO NICKEL PLATED FLAT STEEL KEYS.

No. 4122—2½-inch, Steel, Ivory Black Cases, Brass Plated Shackles, . . . Per Dozen, \$10 00
No. 4122 1/4—2½-inch, Steel, All Brass Plated, . . . Per Dozen, 11 00

Packed One-half Dozen in a box.



No. 4010 1/2.

No. 4010 1/2—3-inch, Steel, Bright Finish, Self-locking, Spring Shackles, Six Secure Levers, Two Double Bitted Flat Bow Keys, . . . Per Dozen, \$8 00



Nos. 4034 AND 4041.

SELF-LOCKING, SIX SECURE LEVERS, TWO DOUBLY BITTED FLAT STEEL KEYS.

No. 4034—3-inch, Brass Cases, Plain Finish, Cast Brass Spring Shackles, . . . Per Dozen, \$9 00
No. 4041—2-inch, Steel, Bright Finish, Per Dozen, 8 00

Packed One-half Dozen in a box.

For Numerical Index, see page 812.

PADLOCKS.

Illustrations Half Size.



No. 04095.

SHACKLES FLY OPEN TO A QUARTER-TURN POSITION WHEN UNLOCKED.

No. 04095—2-inch, Brass Cases, Satin Finish, Nickel Plated Steel Shackles, Self-locking, Two Nickel Plated Corrugated Steel Keys, Automatic Spring Shackles,

Per Dozen, \$3 00

No. 4095—2-inch, Steel, Ivory Black Cases, Nickel Plated Shackles, Self-locking, Two Nickel Plated Corrugated Steel Keys, Automatic Spring Shackles, Per Dozen, 6 00

Packed One-half Dozen in a box.



No. 4109.

No. 4109—2½-inch, Steel, Ivory Black Cases, Brass Plated Spring Shackles, Self-locking, Tumbler and Wards, Two Nickel Plated Flat Steel Keys, Per Dozen, \$5 00



No. 4096 1/4.

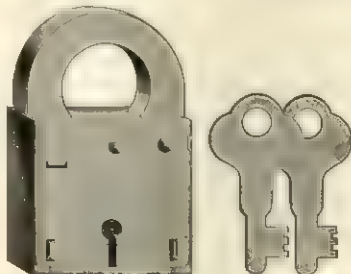
No. 4096 1/4—Steel, All Brass Plated, Buffed Cast Brass Spring Shackles, Self-locking, Tumblers and Wards, Two Nickel Plated Flat Steel Keys, Per Dozen, \$4 00



Nos. 04043 AND 4042 1/4.

No. 04043—1½-inch, Brass, Plain Finish, Self-locking, Spring Shackles, Three Secure Levers, Two Nickel Plated Flat Steel Keys, Per Dozen, \$5 00

No. 4042 1/4—1½-inch, Steel, all Brass Plated, Two Secure Levers and Wards, Self-locking, Spring Shackles, Two Nickel Plated Flat Steel Keys, Per Dozen, 4 00



Nos. 04048 TO 4048.

SELF-LOCKING, SPRING SHACKLE, THREE SECURE LEVERS, TWO NICKEL PLATED FLAT STEEL KEYS.

No. 04048—1½-inch, Brass, Satin Finish, Per Dozen, \$6 00

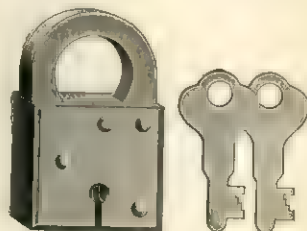
No. 4048—1½-inch, Steel, Ivory Black Cases, Per Dozen, 3 50

No. 04048—1½-inch, Brass, Satin Finish, Per Dozen, 5 50

No. 4048—1½-inch, Steel, Ivory Black Cases, Per Dozen, 3 25

Nos. 04048 and 4048 Packed One-half Dozen in a box.

Other Nos. Packed One Dozen in a box.



Nos. 04047 AND 4047.

SELF-LOCKING, SPRING SHACKLE, THREE SECURE LEVERS, TWO NICKEL PLATED FLAT STEEL KEYS.

No. 04047—1-inch, Brass, Satin Finish, Per Dozen, \$5 00

No. 4047—1-inch, Steel, Ivory Black Cases, Per Dozen, 3 00

Packed One Dozen in a box.

For Numerical Index, see page 812.

PADLOCKS.

Illustrations Half Size



Nos. 04051 AND 4080.

SELF-LOCKING, SPRING SHACKLE, TWO SECURE LEVERS,
TWO NICKEL PLATED FLAT STEEL KEYS.

No. 04051—2-inch, Brass, Plain Finish, Per Dozen, \$6 00

No. 4080—2-inch, Steel Case, Ivory Black, Per Dozen, 5 00

Packed One-half Dozen in a box.



Nos. 4098 AND 04098.

SELF-LOCKING, SPRING SHACKLE, TWO FLAT STEEL KEYS.

No. 4098—2-inch, Steel, Ivory Black Cases.

Per Dozen, \$2 50

No. 04098—2-inch, Brass, Plain Finish, Per Dozen, 4 50

Packed One Dozen in a box.



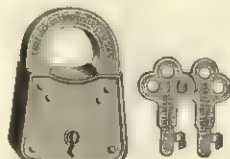
Nos. 4078 AND 04078.

SELF-LOCKING, SPRING SHACKLE, TWO FLAT STEEL KEYS.

No. 4078—1½-inch, Steel, Ivory Black Cases, Per Dozen, \$2 00

No. 04078—1½-inch, All Brass, Plain Finish, Per Dozen, 2 90

Packed One Dozen in a box.



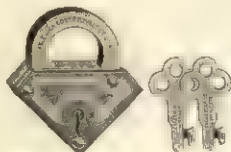
Nos. 04090 TO 4090¾.

No. 04090—1½-inch, All Brass, Plain Finish, Self-locking, Spring Shackles, Two Flat Steel Keys, Per Dozen, \$4 00

No. 4090¾—1½-inch, Brass Plated, Plain Finish, Self-locking, Spring Shackles, Two Flat Steel Keys, Per Dozen, 2 90

No. 4090¾—1½-inch, Steel Case, Ivory Black, Brass Shackle, Per Dozen, 2 75

Packed One Dozen in a box.



No. 04068.

No. 04068—2-inch, Corrugated Brass Shells, Plain Finish, Black Steel Spring Shackles, Self-locking, Two Flat Steel Keys,

Per Dozen, \$2 00

Packed One Dozen in a box.



No. 4066.

No. 4066—2-inch, Steel, Ivory Black, Self-locking, Spring Shackles, Flat Steel Keys,

Per Dozen, \$1 50

Packed One Dozen in a box.

For Numerical Index, see page 812.

PADLOCKS.

Illustrations Half Size.



No. 5042, IXL.

No. 5042—IXL, 2-inch, Six Secure Levers, Ivory Black Steel Cases, Self-locking, Nickel Plated Spring Shackles, Two Nickel Plated Flat Steel Keys, ... Per Dozen, \$4 00



No. 2907 1/2, JUPITER.

No. 2907 1/2—Jupiter, 2 1/2-inch, Steel, Brass Plated, Brass Plated Spring Shackles, Two Flat Steel Keys, ... Per Dozen, \$3 00
Packed One Dozen in a box.



No. 4132 1/4, MASTODON.

No. 4132 1/4—Mastodon, 2 1/4-inch, Brass Plated, Heavy Spring Shackles, Eight Secure Levers, Two Double Bitting Struck-up Steel Keys to Each Lock, ... Per Dozen, \$7 00
Packed One-half Dozen in a box.



No. 250, ALUMINUM.

No. 250—Aluminum, 1 3/4-inch, Cast Nickel Aluminum, Tumbler Locks, Spring Shackles, Self-locking, Two Rolled Steel Keys, Milled and Plated, ... Per Dozen, \$4 00



No. 7427.

No. 7427—Mail Box, 2-inch, Aluminum Finish Cases, Brass Hasps, Self-locking, Spring Shackles, Two Nickel Plated Steel Keys, Twelve Changes, ... Per Dozen, \$4 95
Packed One-half Dozen in a box.



No. 171.

No. 171—All Bronze Metal, Spring Sliding Shackles, Six Cut Levers, Cast Bronze Dog, Old Copper Finish, Two Rolled Steel Keys, ... Per Dozen, \$4 00

For Numerical Index, see page 812.

PADLOCKS.

Illustrations Half Size.



No. 8454, MONITOR.

No. 8454—Monitor, 2-inch, Bower-Barff Steel Cases, Steel Shackles, Bronze Inside Work, Four Lever Tumblers; Two Nickel Plated Steel Keys, . . . Per Dozen, \$18 00



No. 84054, MONITOR.

No. 84054—Monitor, with Chain, 2-inch, Bower-Barff Steel Cases, Steel Shackles, Bronze Inside Work, Four Lever Tumblers, Two Nickel Plated Steel Keys, 0-inch Galvanized Iron Curb Chains, Per Dozen, \$22 20

Packed One-half Dozen in a box.



Nos. 853 and A53.

NICKEL PLATED STEEL SHACKLES, BRONZE INSIDE WORK, FOUR PIN TUMBLERS, TWO CORRUGATED KEYS.

No. 853—Defender, 2-inch, Bower-Barff Steel Cases, . . . Per Dozen, \$16 20

No. A53—Defender, 2-inch, Brass Cases, . . . Per Dozen, 18 00

Packed One-half Dozen in a case.



No. 805, IRONSIDES

No. 805—Ironsides, 2-inch, Iron Cases, Bronze Shackles, Four Pin Tumblers, Two Nickel Plated Steel Keys, . . . Per Dozen, \$13 20



Nos. 813 to 863.

BRONZE CASE AND SHACKLE, LEVER TUMBLERS, TWO NICKEL PLATED KEYS.

No. 813—Yale-Standard, 1 -inch,	Per Dozen, \$18 00
No. 823—Yale-Stannard, 1½-inch,	Per Dozen, 20 40
No. 833—Yale-Standard, 1½-inch,	Per Dozen, 24 00
No. 843—Yale-Standard, 1½-inch,	Per Dozen, 26 40
No. 853—Yale-Standard, 2 -inch,	Per Dozen, 28 80
No. 863—Yale-Standard, 2½-inch,	Per Dozen, 36 00

Packed One-half Dozen in a box.



No. KS4/J, BICYCLE SPROCKET.

No. KS4/J Bicycle Sprocket Locks, 1-inch, Steel Cases, Ivory Black Finish, Brass Shackles, Two Lever Tumblers, Two Steel Keys, . . . Per Dozen, \$3 75

Packed One Dozen in a box.

For Numerical Index, see page 812.

PADLOCKS.

Illustrations Full Size



No. 40.

No. 40— $\frac{3}{8}$ -inch, Brass,
Per Dozen, \$4 50



No. 41.

No. 41— $\frac{3}{8}$ -inch, Brass,
Per Dozen, \$4 50



No. 42.

No. 42— $\frac{1}{2}$ -inch, Brass,
Per Dozen, \$5 00

Packed One Dozen in a box.



No. 43.

No. 43— $1\frac{1}{2}$ -inch, Brass, . . . Per Dozen, \$5 50



No. 44.

No. 44— $1\frac{1}{4}$ -inch, Brass, . . . Per Dozen, \$6 00

Packed One Dozen in a box.



Full Size Out of No. 4016.

Nos. 4021 TO 4014.

SELF-LOCKING, SPRING SHACKLE, FLAT STEEL KEYS.

- No. 4021— $1\frac{1}{4}$ -inch, Iron, Black Japanned, Per Dozen, \$1 50
- No. 4020— $1\frac{1}{4}$ -inch, Brass, Buffed Finish, Per Dozen, 2 00
- No. 4018— $1\frac{1}{4}$ -inch, Brass, Buffed Finish, Per Dozen, 2 50
- No. 4016—1 -inch, Brass, Buffed Finish, Per Dozen, 2 25
- No. 4014— $\frac{3}{4}$ -inch, Brass, Buffed Finish, Per Dozen, 2 25

Packed One Dozen in a box.



No. 4016/C.

No. 4016/C—1-inch, Brass, Buffed Finish, Self-locking, Spring Shackles, Flat Steel Keys, Four Changes, Length of Chain 30 inches, Per Dozen, \$5 00

Packed One-half Dozen in a box.

For Numerical Index, see page 812.

PADLOCKS.

Illustrations Half Size.



No. 1903, WORLD'S FAIR.

No. 1903 World's Fair Padlocks, Brass Cases, Steel Wire Rod Shackles, Nickeled, Self-locking, Automatic Action of Shackles, Two Corrugated Nickled Keys, ... Per Dozen, \$5 00



No. 0530.

No. 0530—2¼-inch, Brass Plated Steel Cases, Brass Plated Steel Shackles, Self-locking, Spring Shackles, Two Flat Steel Keys, Per Dozen, \$3 00



No. 0535

No. 0535—2-inch, Brass Plated Steel Cases, Brass Plated Steel Shackles, Self-locking, Spring Shackles, Two Flat Steel Keys, Per Dozen, \$3 00



No. 303.

No. 303—1½-inch, Cast Brass, Polished, Spring Shackles, Self-locking, Two Flat Steel Keys, Per Dozen, \$3 00



No. 1303

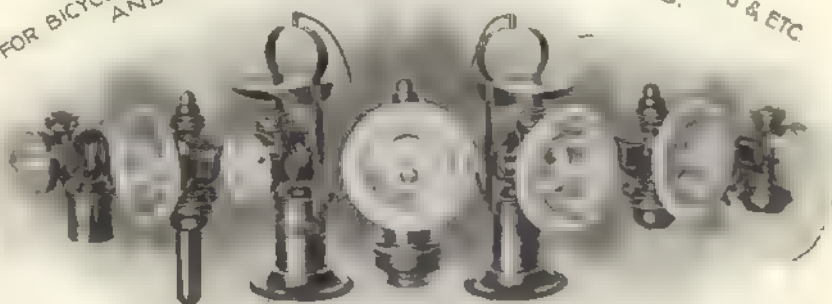
No. 1303—1½-inch Cast Brass, Polished, Spring Shackles, Self-locking, Two Flat Steel Keys, Per Dozen, \$2 50

For Numerical Index, see page 812.

HIGHEST AWARD PAN AMERICAN EXPOSITION, 1901

20TH CENTURY HEAD-LIGHTS

FOR BICYCLES, CARRIAGES, AUTOMOBILES, YACHTS, MINES, HUNTING & ETC.
AND AS HIGH-CLASS HAND-LANTERNS.

BICYCLE
GASAUTO
OIL.
STYLE B.MINERS
GAS.AUTO
GAS.AUTO
HAND-LANTERN
GAS.AUTO
OIL.
STYLE A.BICYCLE
OIL.

MADE STRONGLY OF BRASS AND STEEL

Nickel Plated, Gun Metal and burnished brass finished Aluminum Reflector

Locomotive class: throws great, broad, reflected light ahead.

Bicycle, Miner's and Boat Lamps, red and green side lights. Automobile and Carriage with red side and rear lamps. Adjusted to any part of vehicle with our various brackets. Bicycle Brackets Nos. 1 to 6 inclusive. Auto and Carriage Brackets, Nos. 7, 8 and 9.

Handsome in appearance.

Simple to understand.

Easy to handle.

Bicycle Oil

Capacity, 10 hours.

The "20th Century" Head-light is improved and holds its place among the bicycle lamps of the world. Nickel, brass and gun metal finish. The last named is new and becoming very popular.

In steel finish and with any of our brackets. \$5.00

Auto Oil Style A

Capacity, 20 hours.

Remarks: This is a very compact and remarkable lamp. Used extensively for light carriages, runabouts, etc. Also makes a fine headlight for a tandem cycle.

Either style finish, and with Nos. 7, 8 or 9 Carriage Bracket. \$5.00

Auto Oil Style B

Long Oil Well
Capacity, 20 hours.

Large Aluminum Reflector, and for an oil lamp gives a wonderful light ahead. Is a very graceful lamp for carriages. The point of difference between Style A and Style B is in the shape of the oil well.

Finest style finish, with any of our Carriage Brackets. \$5.00

Auto Hand-Lantern Gas

Capacity, 6 to 8 hours.

A very compact and improved lamp. It is especially adapted for use in automobiles, for it is quickly detached and carried easily in working around the machine, etc. A great outdoor lamp, and a Hand-Lantern and a very extensively for homes and offices.

In steel finish, extra \$5.00

Bicycle Gas

Capacity, 10 hours.

This is a very compact and improved lamp. It is especially adapted for use in bicycles, for it is quickly detached and carried easily in working around the machine, etc. A great outdoor lamp, and a Hand-Lantern and a very extensively for homes and offices.

In steel finish, extra \$5.00

Auto Gas

Capacity, 10 hours.

This is a very compact and improved lamp. It is especially adapted for use in automobiles, for it is quickly detached and carried easily in working around the machine, etc. A great outdoor lamp, and a Hand-Lantern and a very extensively for homes and offices.

In steel finish, extra \$5.00

Miner's Gas

Capacity, 10 hours.

This is a very compact and improved lamp. It is especially adapted for use in mines, for it is quickly detached and carried easily in working around the machine, etc. A great outdoor lamp, and a Hand-Lantern and a very extensively for homes and offices.

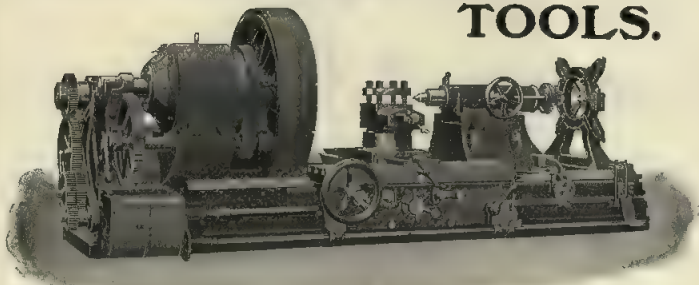
In steel finish, extra \$5.00

SEND FOR 1902 CATALOGUE

20TH CENTURY MFG. CO.

17 Warren St.
New York

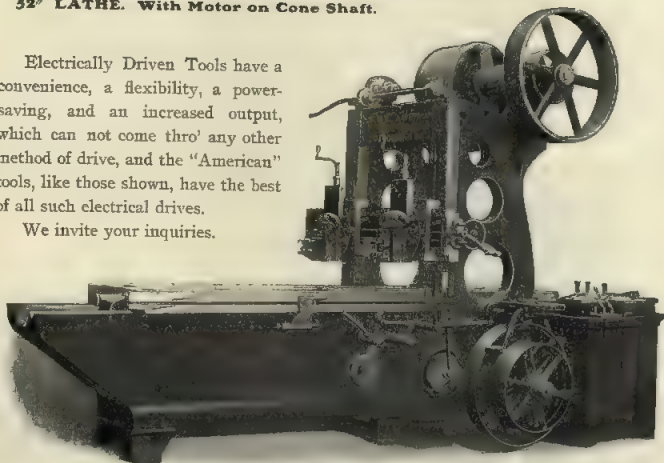
Electrically Driven TOOLS.



52" LATHE. With Motor on Cone Shaft.

Electrically Driven Tools have a convenience, a flexibility, a power-saving, and an increased output, which can not come thro' any other method of drive, and the "American" tools, like those shown, have the best of all such electrical drives.

We invite your inquiries.



30" x 30" PLANER. Electrically Driven.

THE AMERICAN TOOL WORKS COMPANY, CINCINNATI, OHIO, U.S.A.

New York: The Fairbanks Co., Elm and Broome Sts. Boston Store 36 Federal St. Philadelphia The Fairbanks Co. St. Louis Store 725 N. Second St. Pittsburgh Store Empire Bldg. L. & W. Bloor Manager Minneapolis The Northern Machinery Co. Chicago Store O. J. Beckard, March 2 Co. 34-36 S. Canal St. New Orleans The Fairbanks Co. Cleveland The Strong, Curilas & Hammond Co. Toledo National Supply Co. London Alfred Herbert Ltd. 7 Leonard St. Glasgow D. C. (overseas) Alfred Herbert, Ltd. Berlin De Vries & Co. Act. Ges. Klonter Strasse, 1115. Dusseldorf De Vries & Co. Act. Ges. Graf Adolph Strasse, 83-87. Paris Roux Freres & Cie. 54 Boulevard du Temple. Vienna De Vries & Co. Act. Ges. Eschenbachgasse, 9. Antwerp Nyssens Freres. 33 Rue des Peignes. Stockholm Zarco & Co., 54 Klarsborgsgatan.

Sharp Tools for Good Work...

can be always ready when wanted if you have our IMPROVED UNIVERSAL GRINDER in your tool room. It puts tool grinding on an economical and methodical basis. It will save time both on the grinding and on the job for which the tool is needed. It grinds straight and taper arbors, cylindrical and internal work, sharpens reamers; grinds spur, spiral, bevel form and end cutters; taps, countersinks and counterbores, gages, dies, keys and everything that a Grinder could possibly grind.

It has all the little detail improvements that you can appreciate best in the using. It contains the best stuff and is put together in the best possible way, insuring a continuance of hard service without any decrease in efficiency.

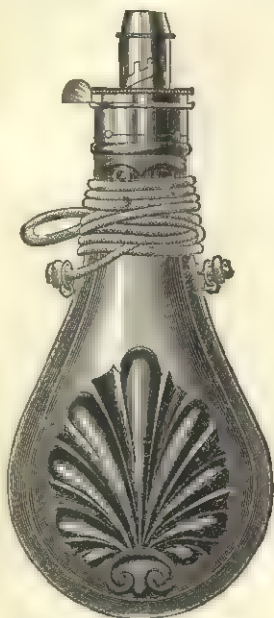
Catalog "C" shows all the attachments and gives many details of interest.



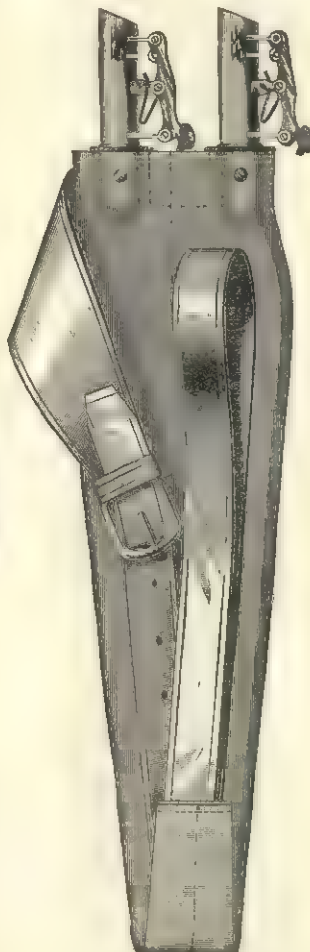
Greenfield Machine Company

Greenfield,
Mass., U.S.A.

POWDER FLASKS, SHOT POUCHES AND SHOT BELTS.



PATENT TOP POWDER FLASK.



SHOT BELT, No. 598.



SHOT POUCH, No. 4073.

POWDER FLASKS.

	Per Dozen
No. 18—8 ounce Common Top,	\$ 3 50
No. 18P—8 ounce Patent Top,	6 00
No. 112P—12 ounce, Zinc,	
Patent Top, ...	9 00
No. 316P—16 ounce, Zinc,	
Patent Top, ...	10 75
No. 212P—12 ounce, Copper,	
Patent Top, ...	13 00

SHOT POUCHES.

	Per Dozen
No. 4073—Dog and Tree	
Pattern, 3 lbs.	\$7 50
No. 4074—Dog and Tree	
Pattern, 4 lbs.	8 50
No. 4076—Indian and Pan-	
ther Pattern, 5 lbs.	10 00

No. 598—Double Straight English, End Buckle Strap, Lever Chargers, ... Per Doz., \$15 25

No. 610—Double Oregon, Waist Belt with Leather Straps, 1 Lever and 1 Screw-off Charger, ... " " 16 00

No. 5063—Double Oregon, Waist Belt with Leather Straps, Russot, 1 Lever, 1 Screw-off Charger, ... " " 18 50

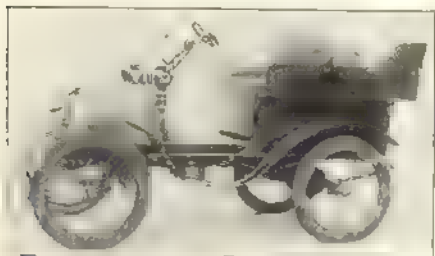
THE AUTOMOTOR CO.'S GASOLINE VEHICLES.

The Automotor Co., Springfield, Mass., are makers of the vehicles we illustrate herewith. All of this Company's vehicles have the motor placed in front, with long wheel base and low centre of gravity. The motors are of the upright cylinder type, with enclosed fly wheels and splash system of oiling. The valves are accessible for adjustment. There are the jump spark plug and commutator. They are fitted with large mufflers to reduce the noise of exhaust to the lowest practicable point. The engine is cooled by a patented heat radiator, which the makers claim is one of the most efficient ever brought out.



Automotor Gasoline Runabout

This radiator, being in front, gets the full benefit of the strong draught of air. The motors are made with both single and double cylinders. The single cylinders are cooled without the use of pump; for cooling the double cylinder motors a new patent rotary drive pump, running at a low speed, is furnished. The starting crank is permanently attached to the front of the car, and one turn of the crank is sufficient to start the motor. The makers have a speed gear of their own design, which is enclosed in an oil-containing case, and gives two forward speeds and reverse. They claim that this high speed clutch is one of the simplest and most reliable devices that has ever been brought out, and one that takes care of itself. When this clutch is thrown in no gears are running, thus reducing friction to the lowest point. The base of the wheel steering column enters the dashboard at a point high enough to allow clear space around the operator's feet for blankets in cold weather. The steering is irreversible and no jar is felt from the road. Power is transmitted from the speed gear to the back



Automotor Gasoline Touring Car

axle through a universally jointed shaft. The rear axle is driven by a pair of bevel gears, together with compensating gear in a bath of oil, tightly enclosed in a dust and water proof case. The speed is controlled by foot pedals entirely, and operates smoothly. There is no jerk in changing from one to the other or in reversing. There are two independent brakes, one acting on the rear wheels and one on speed gearing. All wiring is most carefully insulated and protected from wet weather. Gasoline tanks hold fuel for 150 miles. The cars are equipped with two oil lamps. The touring car which is shown is of a light weight which is very comfortable, compared with the average touring vehicle, although the axles, transmission and wheels are heavier than those used on smaller models, and are sufficiently strong for the weight to be carried. The two-passenger runabout has a platform on the back for luggage, a rumble seat, and has gasoline carrying capacity for 100 miles. The two-passenger vehicles equipped with 3 1/2 H. P. motor, are listed at \$900, with 5 H. P. motor, \$1,000, with 10 H. P. motor, \$1,100, and with 12 H. P. motor, \$1,500. The touring cars with 10 H. P. list at \$1,400, and with 12 H. P. motor at \$2,000. The two-passenger vehicles will be equipped with rumble seat for \$100 additional.

LE JEAL STEAM AUTOMOBILES.

The Le Jeal Cycle & Motor Works, 1721 Sassafras street, Erie, Pa., are manufacturing the steam rig which we illustrate herewith. Its running gear is different from other steam vehicles, and it has 30-inch wheels and double-acting brake of the maker's own design. Ball bearings are used in the front wheels, and roller bearings with ball bearing thrusts on the rear shaft. It has an enclosed spur gear differential. The water glass is put directly across from the



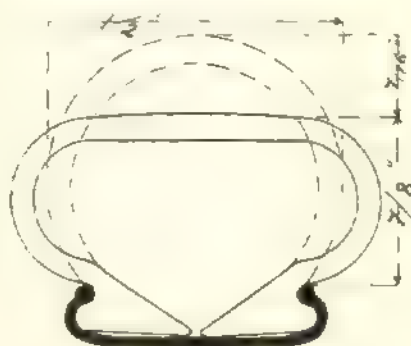
Le Jeal Steam Automobile

boiler, so that in going up or down grade the water remains the same. It is equipped with a steam air pump so arranged as to fill the air tank while running. This pump also inflates the tires. Auxiliary throttle, and water pump and an injector are a part of the equipments. The water capacity is 26 gallons, and gasoline 7 1/2 gallons. The boiler is 15 inches in diameter. It has a pilot light on the burner. This vehicle has been tested on the road, having been run about 2000 miles. Its list price is \$750.

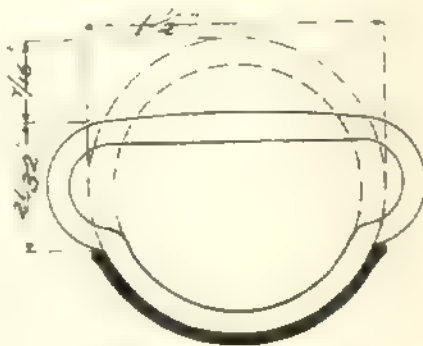
WE CLAIM

The G & J Detachable Tire is the Fastest Vehicle Tire

In the G & J Detachable Tire only the edges seat on the rim, with about four-thirds of the radial section of the tire outside the rim, leaving the side walls free to bend, thus giving an increase in pneumatic effect. A GREATER MILEAGE CAN BE OBTAINED FROM THE SAME AMOUNT OF POWER WITH G & J TIRES THAN WITH ANY OTHERS, owing to its advantageous form of construction and the high class of materials used.



Average radial section of tire in the hinge of the G & J Detachable Tire.



Average radial section of tire in the hinge of a standard tire.

Note the difference in the hinge of the two tires with an equal amount of deflection.

Proof of Our Claim

In Jersey City, N. J., two electric vehicles of identical construction, one equipped with G & J Detachable Tires, the other with *biggest tires* of another make, were tested in a mile run (ten city blocks), both machines set to run at the same rate of speed. Result—the machine fitted with G & J Tires distanced its competitor FOUR BLOCKS.

In order to be sure that the test was a fair one, the wheels on the two machines were transposed—the wheels fitted with G & J Tires being placed on the machine that was distanced in the first test, and vice versa. The machines were again set to run at an equal rate of speed, and in the mile run the G & J Tires distanced its competitor FOUR BLOCKS.

G & J Detachable Tires ARE

FASTEST SAFEST STRONGEST

G & J Tire Co., Indianapolis, Indiana

(F) is a secondary mixer or valve to supply air for the conversion of the saturated mixture into a highly explosive gas.

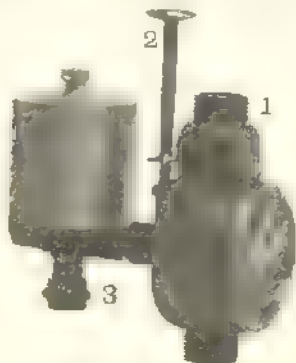
The No. 2 vaporizer is about twice the size of the illustration, measuring 6 inches in height and about 5 inches in width. It is adapted for use on motors up to 5 H. P. It weighs 1 pound 8 ounces. The No. 3 is the same height, but has larger diameter. It is suitable for 10 H. P. motors.

The Little Giant Vaporizer makes gas only as needed by the motor and will feed properly at any speed with none but initial adjustment of the needle valve. This vaporizer is not affected by atmospheric changes. Every one is thoroughly tested before leaving the factory, and the results obtained by the use of this device are very flattering to the manufacturers.

An important claim made by the manufacturers is that any grade of gasoline or kerosene can be used in this vaporizer.

THE AXIOM SIGHT FEED CARBURETOR.

This carburetor is made by the Axium Carburetor Manufacturing Co., 106 East Twenty-eighth street, New York city, and possesses a number of valuable features. A very important feature is the open face generating chamber, which permits the operator to view the working of the device and thus more intelligently gauge the flow of gasoline. In the Model B, which we illustrate, No. 1 connects to inlet valve of motor; No. 2 regulates amount of gasoline; No. 3 connects to gasoline tank. It weighs 1½ pounds. This



Model B Axium Carburetor

model is of the gravity feed type. For motor cycle and machines where a large rod is necessary the rod (2) can be lengthened to suit any requirements. No air levers are used and all uncertainty of operation is eliminated.

The Model A has automatic feed and after once regulating feed no further attention is required. For the benefit of those who use a mixing valve and are familiar with its requirements they sell the generating chamber separately. This is catalogued as Model C. All the features of Models A and B are retained in Model C, with the exception of the constant level flow.

MAGNET CEMENTS AND LUBRICANTS.

The Magnet Cement and Dressing Co., 878 North Forty-eighth street, West Philadelphia, is offering to the trade a very attractive line of cements, dressings and lubricants which they are selling at prices sufficiently low to interest the most careful buyer. Although this company is comparatively new so far as name is concerned, it is old in experience, for its president, Mr. J. P. McCormick, who will supervise the sales department, is well known to the trade throughout the country, and Mr. Frank D. Sylvester, who is general manager and superintendent, has been identified with the cement and dressing business for fourteen years, of which ten were spent in charge of one of the leading factories of this country. Their line is very complete, and embraces every kind of cement manufactured for the bicycle, hardware and rubber trades.

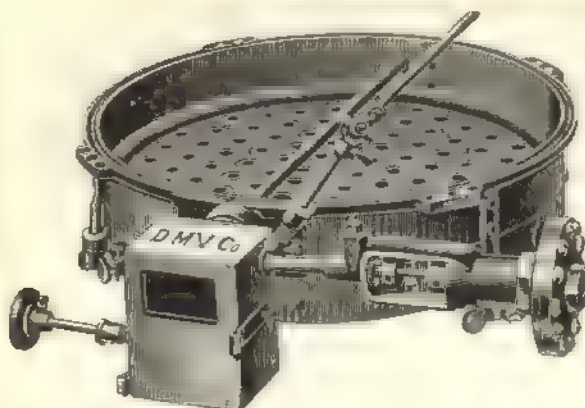
Their Rock Cement is one of the finest products of its kind in the world. It mends everything—glass, china, crockery, wood, metal br a-brac, etc. It is the only cement known that is positively impervious to hot and cold water, is always ready for use and will not congeal in cold weather.

Among other of their products are Magnet Rubber Cement for repairing all kinds of rubber goods, Magnet Wood Rim Cement for cementing tires to wood or metal rims, Samson Plug Cement for cementing plugs in single tube tires, Magnet Plugola for small tire punctures, Clincher Rim Cement, a special shellac preparation for cementing tires to motor cycles, automobiles and all vehicles where an extra strong and quick drying cement is required; Peerless Liquid Glue, which is put up in handy collapsible tubes and requires no brush (this glue is also put up in various sized bottles); Magnet Bearing Grease for bicycles and automobiles; Magnet Graphite for all kinds of lubricating purposes, and Chain Ease for bicycle and automobile chains. This does not soil the hands, runs smoothly, stops rattling noises and prevents wear.

In addition to these products the Magnet Cement and Dressing Co. are putting up a full line of dressings which are of the highest grade, and will be sold at the lowest prices. Their numerous products are put up in various sized tubes and bottles, and in bulk. Their line is so complete that they can offer the trade everything required in the cement and lubricant line. Samples of any of their products will be sent free on receipt of business card.

This company's factory, which is located in Philadelphia, has recently been equipped with modern machinery, and their facilities for filling orders promptly and satisfactorily cannot be excelled.

Assistant Postmaster Woodward, of Omaha, Neb., is looking seriously into the matter of using automobiles for hauling mail from post office to depots, etc., and will let contracts for the next four years, beginning July 1, 1902.



"The Dayton" Running Gear

Pat. June 4, 1901.

Great Strength and Flexibility

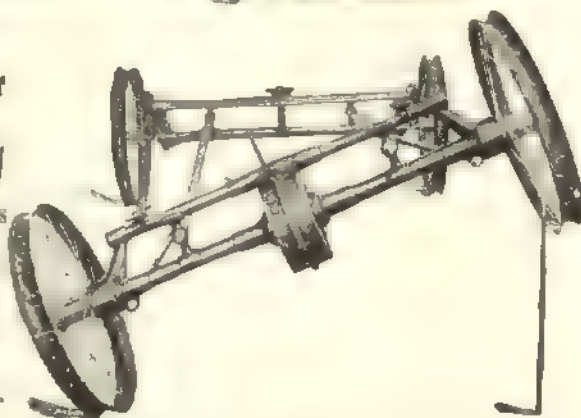
Adapted to all Classes of Motor Vehicles

We also make

ENGINES, BOILERS, BURNERS
and a complete line of
STEAM FITTINGS

Automobile Construction

The Dayton Motor Vehicle Co.
DAYTON, OHIO



THE "DAYTON" BURNER

PATENT APPLIED FOR

Burner consists of a one piece casting, that cannot warp or leak. Gas passages are far a head of opening which will not plug at low pressure. It is so designed that securing maximum capacity. Test burner can be quickly and thoroughly cleaned and is perfectly indestructible. The pilot burner contains the generator and the pilot light which are instantly accessible and thermostatically controlled. Pilot light burns at low pressure controlled by one valve from driver's seat. Automatic Gasoline Regulator. Everything necessary for safe, quick clean and efficient operation. Descriptive circular on application.

"Packer"

BICYCLES

ARE WHEELS OF QUALITY

It is wise to handle goods that will stand the test. Such goods are standard, reliable, high grade and are everywhere. "Packer" bicycles are sold all over the world. "Stay sold." All 1902 Models are built to order. No stock. Reliable agents for reliable bicycles get them. Write for catalogue.

The PACKER CYCLE CO., Reading, Pa.

Fifth annual catalogue ready Feb. 1st



The "Perfect" Air Coupling

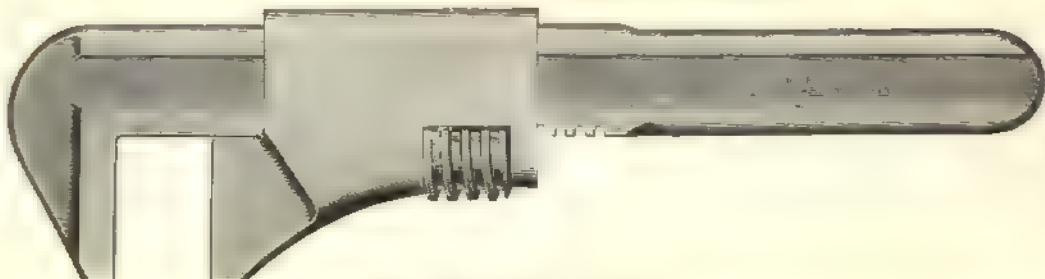
The only coupling positively guaranteed against leaks of any kind, or in any condition.

Manufacturers, Jobbers, Dealers, write for trade prices.

By mail, upon receipt of price, 50 cents

E. S. YOUSE

Reading, Pa.



'B. & S.' Automobile Wrench

THE BILLINGS & SPENCER CO.'S WRENCHES.

The Billings & Spencer Co., Hartford Conn., whose advertisement appears on an other page in this issue, are offering, among other specialties, a line of substantial wrenches for bicycle and automobile use.

The Billings' Patent Adjustable Pocket Wrenches are made in three styles designated as Models A, B and C. The jaws of these are all the same, but each model differs



Billings' Cam Lever Wrench

slightly from the others in the shape of handles and in size or weight. Model A is $4\frac{1}{4}$ inches long and opens one inch. It weighs $7\frac{1}{2}$ ounces. Models B and C are each 5 inches long and open one inch. The former weighs $7\frac{1}{2}$ ounces and the latter 7 ounces. List price of these wrenches is \$9.00 per dozen in black, and \$10 per dozen in nickel finish. They are drop forged from bar steel. The sliding bar is oval edged and graduated to thirty seconds of an inch.

The "B. & S." Adjustable Automobile Wrench is made in two styles case hardened finish and in three sizes, 10, 14 and 18 inches. They are made of bar steel and



Model '97 Billings' Bicycle Wrench

drop forged. Prices run from \$10 per dozen up, according to size and finish.

Their Model '97 is for bicycle use and can readily be carried in the pocket. All corners are rounded off. It weighs only $5\frac{1}{2}$ ounces and sells at \$6.00 per dozen in black finish, and \$7.00 per dozen in nickel finish.

Billings' Cam Lever Wrench weighs 8 ounces and the price is \$10 and \$12 per dozen respectively for the black and nickel finishes.

They also make an adjustable wrench for shop use, drop forged from bar steel, in two

sizes, 5 and 6 inches, finished and graduated same as the Model A wrench. Price of the 5-inch wrench in black is \$10 per dozen and in nickel \$12 per dozen. The 6-inch lists at \$12 and \$15 per dozen in the black and nickel finish respectively.

CRUCIBLE STEEL CASTINGS IN FIVE DAYS.

The Uniform Steel Co., of Newark, N. J., have adopted a policy which will undoubtedly win them many good customers among manufacturers of automobiles, inasmuch as they agree to deliver castings five days after receipt of patterns. Anyone who is familiar with the delays caused as a result of part manufacturers failing to promptly fill orders will appreciate that quick deliveries are of great advantage to the trade. The Uniform Steel Co. are sole owners of the secret process by which steel equal to the best forge steel can be made without forging. Their castings are free from blow holes, and are of the highest grade crucible steel. By the use of their secret process they are enabled to make cutting dies, stamping dies, pipe threading dies, taps; in fact, everything in which heretofore a large amount of machinists' or die sinkers' work has been necessary, thus saving all machine work, except finishing. Within a short time these steel castings have won universal favor, and the Uniform Steel Co. is prepared to submit copies of testimonial letters from the largest manufacturers in the country, which proves conclusively that they can substantiate all their claims. They have a large factory located at 451 Riverside Avenue, Newark, and a metropolitan office, 320 Broadway, New York. Automobile manufacturers who require both prompt service and superior castings will undoubtedly find it to their advantage to correspond with this firm.

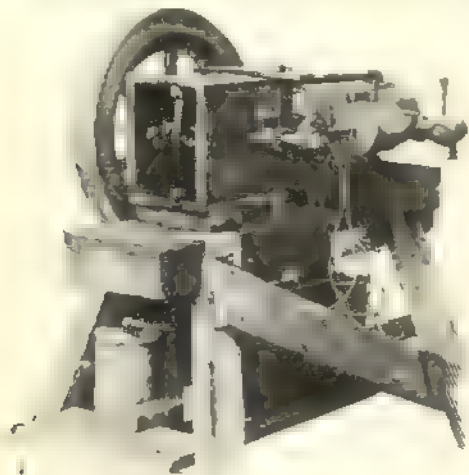
A PAIR OF JACKS.

Among the specialties made for the motor vehicle trade by the Xander Machine and Supply Co., Reading, Pa., is a cast metal jack and torch heater. It has a leather covered yoke at the top for the axle to rest in, and a foot with a rounded heel, so that by placing a pair of these jacks under the axle with the heel on the floor a good push on the vehicle body will raise the vehicle off the floor, thereby saving the tires during the time the vehicle is not in use. When used as a torch heater a little gasoline is poured into the trough in the shank of the jack and the torch placed thereon.

A NEW GASOLINE MOTOR.

Thomas Doherty, Sarnia, Ontario, Canada, has perfected and applied for a patent on a new gasoline engine of unique design.

The motor is straight bore cylinder, water jacketed, with crank case on one end, in which two pistons operate on the one crank shaft, double-throw explosion taking place between the pistons, one acting on one crank and the other on the other crank, thereby



Doherty Motor Mounted on Wooden Support producing a revolving motion with little or no vibration and a great expansion of the gases. The one piston in crank end of cylinder is connected to crank by off-set connecting pitman, and the other piston is connected by straight pitman from crosshead to which two offset rods run through and attach to cross-bar on outer piston. The engine shown is 5-inch bore and 8-inch stroke, 4-inch each piston. This necessitates a 1 1/4 offset in the rods shown in skeleton view. As the point of force is exactly equal on each piston it can be readily seen that vibration is practically nil, even when running 1000 R. P. M., at which speed it will indicate 10 H. P., and that on much less gasoline than usual for a motor of its size. The action of two pistons instead of one gives a very high compression and insures a much more positive induction and uniform explosion, and such a thing as a mis-explosion will not occur in several hours' run. The motor weighs 240 pounds. It is very



Skeleton View Doherty Motor simple, durable and easily kept in repair. It can be taken apart in a few minutes. The cranks and front pistons are self-oiling, the open end of crank case being closed up by a cap and screws. The compression can

be adjusted as desired by the adjustment of two jaw nuts on each rod end, on outer piston. The photo of complete motor was taken after a test of an hour's run. The motor was mounted on a light pine stool, standing loose on the floor, which did not move. This motor is being patented in all countries and will be for sale as soon as patents are granted. It is built with a view of propelling a 1000-pound carriage up any reasonable hill and out of any reasonable mud hole on the high speed gear on 400 R. P. M. The compression being so high, it never fails to start on one turn of the crank. The Canadian price is \$250. The space occupied, exclusive of wheel shaft is 9x10x30 1/2 inches.

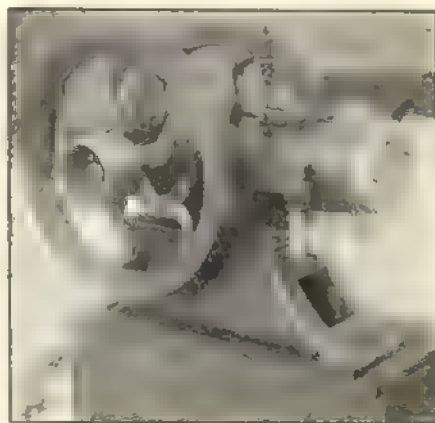
THE DESMARAIS GASOLINE MOTOR.

We show herewith two views of the gasoline motor made by P. Desmarais & Co., Bristol, Conn. This is a two-cycle engine which is entirely valveless and noiseless.



Desmarais Motor, Showing Sparking Device.

There is not even a valve in the carburetor or to admit the mixture into the crank chamber. There is but one valve on the whole machine, that to throttle the mixture. It



Desmarais Motor, Pulley Side

\$

\$

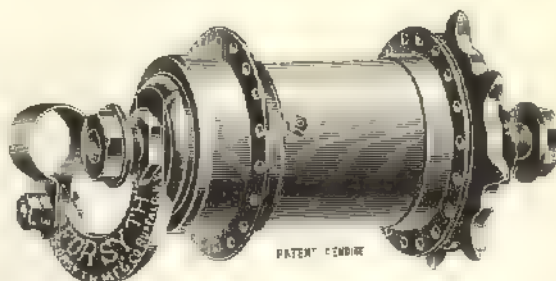
DOLLARS AND SENSE

are good things to possess

If you have the latter we can help you get the former

There are so many good talking points about the

F O R S Y T H



COASTER BRAKE

that you only have to explain the good features to make sales and likewise money.

ADJUSTABILITY. Parts can be adjusted without removing wheel from frame. No other brake has this necessary feature.

SIMPLICITY.—Fewer parts than any other brake, and each of more than sufficient strength.

COASTING. Wheel runs absolutely free both ways.

BRAKING.—Is effective and there is no danger of throwing the rider. No jerky or slipping motion in changing from one operation to the other.

FORSYTH MANUFACTURING CO.

BUFFALO, N. Y.

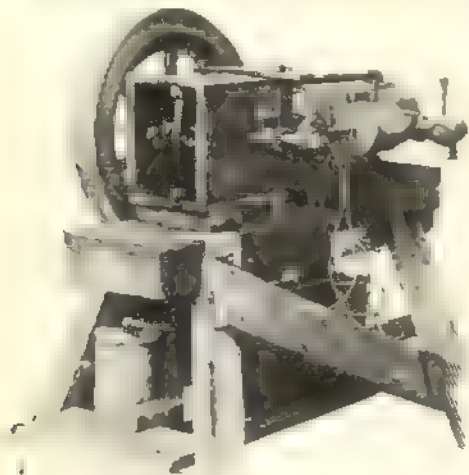
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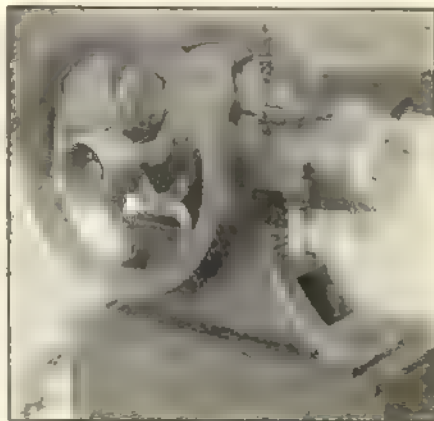
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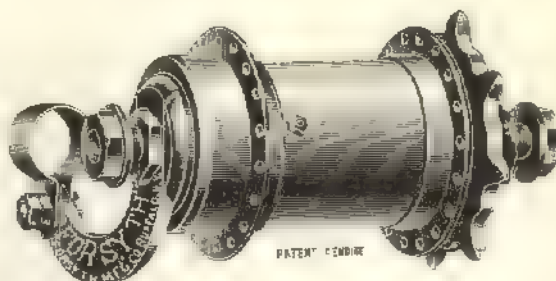
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If you have the latter we can help you get the former

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F O R S Y T H



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ADJUSTABILITY. Parts can be adjusted without removing wheel from frame.
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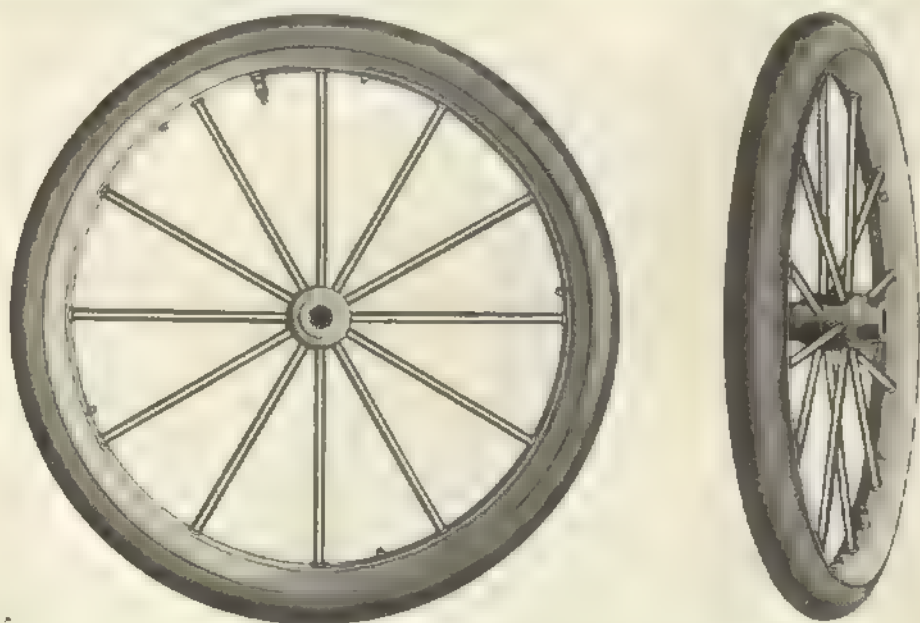
BRAKING.—Is effective and there is no danger of throwing the rider. No jerky
or slipping motion in changing from one operation to the other.

FORSYTH MANUFACTURING CO.

BUFFALO, N. Y.

\$

\$



The American Tubular Steel Wheel.

THE AMERICAN TUBULAR STEEL WHEEL.

The American Tubular Steel Wheel for automobiles, made by the American Tubular Wheel Co., Pittsburg, Pa., is built to carry an weight of automobiles and the wheels have not followed any of the lines that which bicycle wheels are constructed. They prove that it is a mistake to apply bicycle construction to automobile wheels.

The hub of this wheel is turned from a solid bar of cold rolled steel and is fitted with ball bearing reaches, retainer and dust cap. It can be furnished with any size ball bearing, roller bearing or spindle box. Spokes are $\frac{1}{2}$ -inch (13-gauge) cold drawn seamless tubing, and walls of tubing are 3-22 not thick. Rims are extra thick 11 $\frac{1}{2}$ -inch (inch) stock being used for the 21-inch rims, and proper thickness for larger sizes.

A machine-turned bolt passes through the rim and threads into upper end of spoke, which is provided with a countersunk copper washer. A pin, riveted at both ends, passes through both spoke and bolt, preventing the bolt from working out. The connection of spokes to hub is equally secure. The hub and spokes are threaded, but before screwing the spoke into the hub a stud, the diameter of which is equal to the inside diameter of the spoke, is screwed into the base of the hole where the spoke is to fit. The stud projects from the hub about 1 1/2 inches and the spoke fits over the stud and screws into the hub.

These connections will not jar loose, and should a spoke be broken it can easily be replaced.

These wheels have been very severely tested and have stood every strain.

ATTRACTIVE ADVERTISING MATERIAL OF THE 1902 "HOLLEY."

Holley Motor Co., Hartford, Conn., has sent us an attractive piece of advertising in the form of a four-page folder in which is given a lot of interesting information about the 1902 Holley Motor Bicycle, which they call "the much imitated motor bicycle." If the Holley has been "much imitated," therefore, it will undoubtedly get its full share of imitation during 1902, for the latest developments in many important improvements that will serve to keep the "Holley" right up in the front rank of motor propelled vehicles.

As the pages of the folder just issued measure 8 $\frac{1}{2}$ inches by 11 inches, there is ample room to tell the whole story about the Holley, and it is told in a plain, straightforward, practical manner which convinces one of the merit of this famous motor bicycle. A heavy red border around the pages attracts the eye at once, and the excellence of the reading matter holds the attention of the reader until every word is read. A fine large illustration of the Holley appears on the first page, and on one of the inner pages is shown an enlarged picture of the Longmore Carburetor; but perhaps the most interesting illustrations are the two on the last page, which show the Holley of 1901 and that of 1902. It is readily perceived from these two illustrations that the Holley has been improved and simplified in almost every detail.

LIBERTY BELLS FOR 1902.

The Liberty Bell Company, Bristol, Conn. have a nice assortment of bells for 1902. Their continuous ringing chime bells have been constantly improved and brought up



Liberty Bell, No. 5-W E

to the minute in perfection of construction. These bells are easy to operate and produce satisfactory results. They are always ready and no winding is necessary.

Their 1902 catalogue contains illustrations of their several styles. They have endeav-



Liberty Bell, No. 8-P L

ored to meet all requirements of the cycle and automobile trade with as small a variety of styles as possible. This is clearly to the advantage of the dealer.

Their bells are guaranteed against defect



Liberty Bell, No. 35-C.

tive material and workmanship, and are original in design and practical in construction.

They are receiving large orders from both domestic and foreign trade and Liberty Bells are far to be as popular this year as ever.

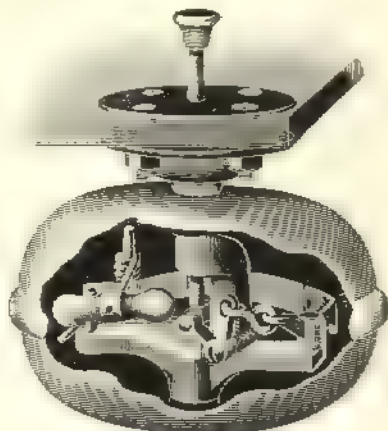
STARR BICYCLE AND AUTOMOBILE BELLS.

Starr Brothers Bell Co., East Hampton, Conn. manufacture a line of bells and gongs for every conceivable purpose. They confine

their sales to manufacturers and jobbers and refer all inquiries from retailers to the nearest jobber of their goods.

Their bells are simple in construction, have few parts to get out of order and have a peculiar richness of tone.

Over 50 years' experience in the manufacture of bells has given this concern an intimate knowledge of the business, which is in itself a guarantee of the perfection of their product.



The Starr Auto. Bell.

They make bicycle bells in great variety, including push button bells, continuous ringing chimes, electric stroke bells, rotary electric bells, double chimes, double strokes and continuous ringing bells.

They have also a nice line of automobile bells, double strokes and electric strokes. The double stroke automobile bell is made in two sizes, 6-inch and 4-inch, and any length plunger desired is furnished.

These gongs are made from pure bell metal, heavy nickel plated, and are tuned to produce two distinct notes in perfect accord. The movement is a double stroke and strikes the gongs alternately, and as the mechanism is very simple they claim that this bell cannot be excelled for durability. They also manufacture an electric stroke auto. bell 3 1/2 inches in diameter and a cheaper double stroke bell with japanned back, diameter 5 inches. They would be pleased to furnish their catalogue and quote prices upon request.

S. H. St. John & Son, 620 Main street, Canon City, Colo., will shortly put out a new automobile with an engine of improved design. One of the chief features of the engine is that it can be instantly reversed. A complete description with illustrations will appear in a subsequent issue.

The Buckeye Manufacturing Co., Anderson, Ind., will shortly put out a vehicle called the Unionmobile. It will be a combination job for two or four passengers, and when used for two passengers will look like a regular two-passenger rig. They expect to begin making deliveries by May 1. The Union Automobile Co., Union City, Ind., will make the vehicle.



No. 3 Regular. Regular Stem.
8 inches wide 2 inches when level. List, \$2.00.
The bar that is used by the masses.



No. 4 Racing. $2\frac{1}{4}$ -in. Forward Extension.
20 inches wide. 22 inches when level. List, \$2.25.
For Racing and Club Men.



No. 5 California 1-in. Forward Extension.
20 inches wide 2 inches when level. List, \$2.25

KELLY ADJUSTABLE HANDLE BARS

STANDARD
OF THE
WORLD

For years they have been the best and
most popular bars on the market.

Ask Us For Quotations

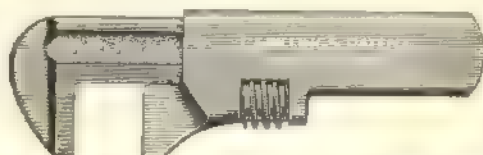
KELLY HANDLE BAR CO.
CLEVELAND, OHIO

THE B. & S. WRENCHES

ARE POPULAR THE WORLD OVER

They have stood the test of time and have been found reliable.

Model 97
Adjustable
Bicycle
Wrench Has
All Round
Corners

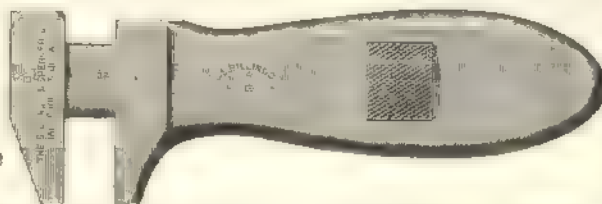


Can Be Carried
in the Pocket.
Opens $1\frac{1}{2}$
Inches; Cut
is $\frac{1}{2}$ Size

EVERY MANUFACTURER SHOULD
EQUIP HIS MACHINE WITH A

B. & S. ADJUSTABLE WRENCH

Model A
Adjustable
Pocket
Wrench.
Cut $\frac{3}{4}$ Size



The Hand-
somest and
Strongest
Pocket
Wrench
Ever Placed
Upon the
Market

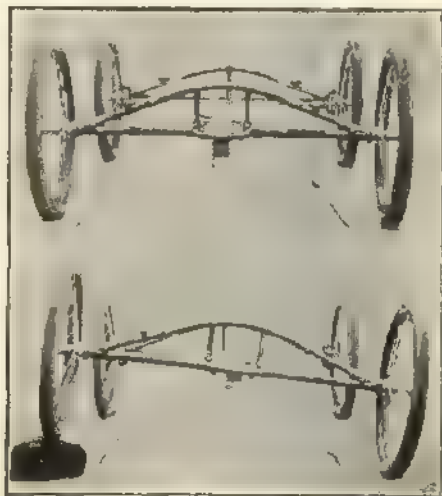
Finished Black or Full Nickel Plated; opens 1 inch. Sliding Bar is Graduated in 30ths of an inch. Drop Forged Crown Bar Steel. We also make Drop Forgings of every description.

THE BILLINGS & SPENCER CO., Hartford, Conn., U. S. A.

London Office: No. 8 Long Lane, Aldersgate St., London, E. C. England

LIGHT CYCLE COMPANY'S GEARS.

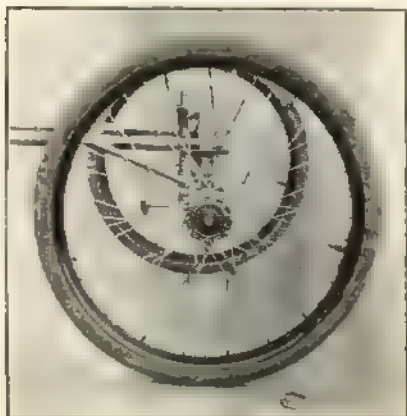
Light Cycle Company, Pottstown, Pa., are manufacturing running gears, compensating gears, etc. We illustrate their most improved type wire wheel for automobiles. The special feature of this wheel is the ease with which the ball bearings may be inspected



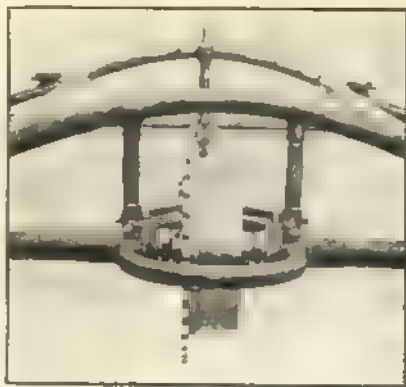
Light Cycle Company's Running Gear on Level and Passing Over an Obstruction

These wheels stood the test of the Endurance Run without a break or a sign of wear. Extra wide hubs are used, to avoid buckling, which measure $4\frac{1}{2}$ inches between flanges. $\frac{3}{8}$ inch and $\frac{1}{2}$ inch balls are used, and the best axled spokes. Stock wheels are built up in 27x30-inch runs, but the makers will supply any size required, preferring to build to specifications.

We show also their complete running gear, giving two views, one on the level and the other passing over an obstruction, to show the flexibility of the gear. These running gears are made in two sizes, Nos. 1 and 2. The No. 1 has a carrying capacity of 1000



Light Cycle Company's Wire Automobile Wheel



Light Cycle Company's Spur Compensating Gear

pounds and weighs 125 pounds. Reaches are $19\frac{1}{4}$ inches between centres, tread is 4 feet 8 inches, and four spring seats are used. Side steering is provided. The tubing used in the main frame is $1\frac{1}{2}$ -inch and $1\frac{3}{4}$ -inch Shelby seamless. Rear tubing is $1\frac{1}{4}$ -inch and $1\frac{3}{4}$ -inch; rear axle $1\frac{1}{4}$ -inch solid stock. The distance from front to rear axle is 60 inches. Braking surface is $8\frac{1}{4}$ inches by $1\frac{1}{4}$ inches.

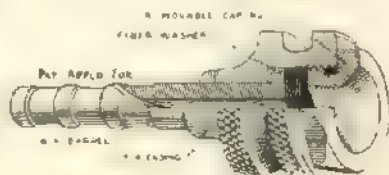
The No. 2 gear is considerably heavier than the No. 1, and will stand a load of 2000 to 3000 pounds. Otherwise the specifications are similar to those of the No. 1 gear. These gears are furnished either enameled or unenameled. Hubs and spokes are nickel-plated. The manufacturers will build to any specifications furnished.

Their compensating gear, which we also illustrate, is made with either 30 or 36-tooth sprocket. It is of the spur type and has proved its durability in general use by many automobilists, as well as in the Endurance Run.

THE YOUSE PERFECT AIR COUPLING.

A coupling that positively will not leak is certainly a boon to users of air pumps. The "Perfect" Air Coupling, made by E. S. Youse, Reading, Pa., is guaranteed not to leak regardless of the pressure. The maker backs up this guarantee by stating that he will refund the price of any "Perfect" Air Coupling that leaks. Patent has been applied for on this ingenious device.

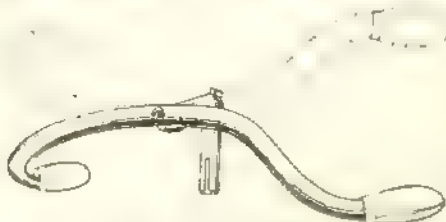
While the simplicity of this device is a very strong point, its most commendable feature is the manner in which it is threaded to couple on to the external threads of the Schrader valve. This avoids the ne-



The Youse Perfect Air Coupling

THE CALIFORNIA HANDLE-BAR.

The California Handle-Bar is a strong, light and neat bar. It is easy to reverse and gives the rider the proper position. It is a reversible extension handle bar, possessing a number of distinct advantages. It can be



The California Handle Bar

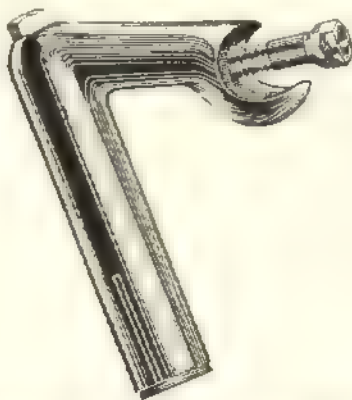
raised or lowered without removing a grip. The peculiar construction of this bar gives it great strength. The tubing of the bar is brazed to a centre piece, 23½ inches long, turned from bar steel. With this reinforced centre the bar is practically unbreakable.

A screw through the bar centre holds the bar rigidly to the extension stem. The stem is a drop forging, milled to give the bar centre for about half of its circumference.



Centre of Bar Top of California Handle Bar

The bar tops are furnished in all the popular shapes. The one shown in illustration is the regular 21-inch wide with 3-inch drop and 1½ forward extension. The tubing used is of the very best seamless make, and the nickel plating is done over a heavy plate of copper.



Forward Extension Stem of California Handle Bar

To avoid the danger of the bars getting scratched in transit each one is covered with stockinette. Price of bar complete is \$2.50. They are made by California Handle Bar Co., 497 Larkin street, San Francisco, Cal.

MOTOR BICYCLE FRAMES

The Hart Mfg. Co., of 370 Atlantic avenue, Boston, are building up special frames for motor cycles, either with or without bed plates, as ordered, and have developed quite a trade in this line. Their frame is extra strong and adapted to bear the strains incurred from carrying the weight of the motor. They are also bringing out a new battery box which will clamp on the rear stays and carry four cells in such a way that two of them are on each side of the stays and the weight is better distributed than in the usual type and less space occupied. We expect to illustrate this in our next issue. They also make up parts to order for bicycle and automobile construction.

THE MONNOT PEDDO-MOBILE.

Charles D. Monnot & Sons, 811 North Cleveland avenue, Canton, Ohio, are making a very convenient vehicle intended as a go between, as it can be used as a delivery for carrying small parcels; or can be converted in a few minutes into an ordinary bicycle. It has chainless gear, weighs 55 pounds and will carry a load of 100 pounds.



The Monnot Peddo-Mobile

It is operated same as bicycle and, in fact, is a bicycle, the delivery attachment being a separate arrangement that is attached to the front fork after the front wheel has been removed. The change is accomplished in a few minutes. It is quite handy for firms that are not justified in keeping a horse and wagon, or for firms that need a sort of special delivery to supplement their regular delivery service. The manufacturers will quote price on application.

GUN METAL FINISHED LAMPS.

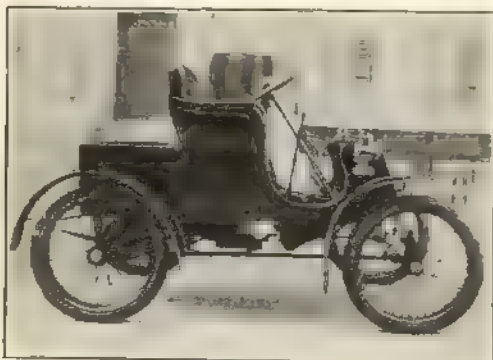
The Twentieth Century Mfg. Co., 17 Warren street, New York, makers of the well known Twentieth Century Cycle and Automobile Lamps, are putting out a gun metal finish lamp for 1902 trade. This is a new idea, and as this finish makes a very attractive lamp, it will no doubt become very popular. Its price is the same as the brass or nickel plated styles.

tests. The price, including mudguards, lamps, roller foot and odometer is \$1000 at the present time, although the company expects to increase this to \$1100 in the near future. The top is \$100 extra.

"PACKARDS" FOR 1902.

The Ohio Automobile Co., Warren, Ohio, are making the Packard automobile in two styles called respectively Model C and Model F. In essential parts of construction they are alike, differing only in a few unimportant details.

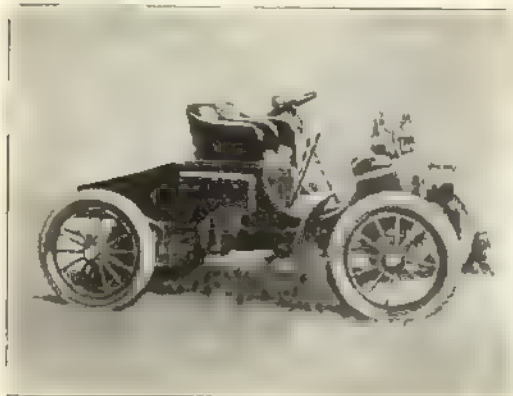
In the Model C a four-cycle, single cylinder 12 B. H. P. engine is used, and the manufacturers state that the single cylinder engine causes no more vibration than a multiple cylinder engine. Thirty-four-inch bicycle type, tangent spoked wheels are used, with flat based, flaring edged steel rims and



Model F Packard Automobile

single tube tires. Jump spark ignition is employed, the ignition taking place at the point in the stroke which gives the maximum cushioning effect and highest efficiency. Two sets of dry mills are used with conveniently located double-throw switch to change from one to the other.

Gasoline tank holds sufficient for a run of 15 to 200 miles. A glass gauge indicates the supply at hand at all times. Water tank for cylinder cooling holds four gallons, sufficient for a season's work.



Side View Model F Packard Automobile.

Oiling of every part is accomplished by moving a single lever. Gear and chain drive is used. Speeds from six to ten miles per hour are possible on the low speed, and speeds up to over 22 miles per hour on the high speed. A float feed carburetor is used that insures positive and automatic carburetion and is unaffected by atmospheric changes.

A hand and a rite brake are employed, the latter operated by an auxiliary foot lever. Frame is of channel iron bent to shape. Body is fitted with Dos-a-Dow seats, the rear one being removable. One pair of Dietz Lamps is furnished.



Front View Model F Packard Automobile.

On the Model F 4-inch clincher tires are used. Front and live rear axle are fitted with Baker Ball Bearings.

This is thoroughly an American vehicle built to meet the requirements of American roads and the desires of the American people.

Wheel base is seven feet long and the body is very low. Gears run in oil bath. It has a hydraulic seat or ordinary single seat are supplied as desired. Detachable rear seat can also be supplied.

In all important respects this model is similar to Model C.

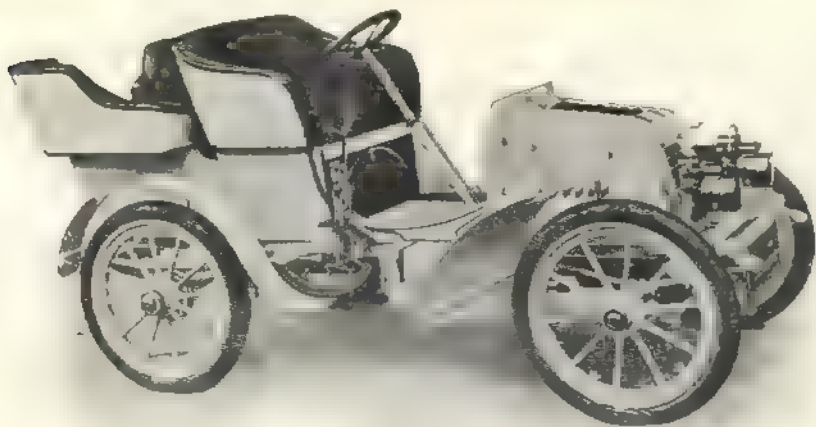
CHICAGO SHOW ARRANGEMENTS.

The management of the Chicago Show announces that up to January 15, 22 exhibits of gasoline vehicles, 10 of steam and seven of electric vehicles, a total of 39 in all, were booked, which indicates that the show will be the largest ever held in this country.

They also announce that those who desire small inexpensive space will be able to secure it by addressing the manager.

All morning sessions, from 10 to 12, will be free to visiting carriage, automobile and cycle dealers on presentation of special certification.

The National Association of Automobile Manufacturers will establish headquarters there, and conventions have been called during the show by the Chicago Automobile Club (of automobile clubs), by the American Motor League (of users) and by the Automobile Dealers' Association.



Peerless Automobile, Style E

THE PEERLESS AUTOMOBILES.

Two models of the Peerless Automobiles made by the Peerless Mfg. Co., 1341 West street, Cleveland, O., were shown. This vehicle has a long wheel base and low centre of gravity. The crank discs run in oil. Ignition is by jump spark by means of mechanical vibrator of their own design. A single lever controls all speeds. The fuel is fed by channel from under the seat of a horizontal valve. The lights are of vertical type. Wood or wire wheels are provided as wanted. It is equipped with two kerosene side lights and two kerosene headlights, or with four single headlights, or with two. The car is fitted with an improved design requiring no adjustment. The electric current is generated through a special heavily insulated generator which is proof against short circuiting in wet weather. The speed gear is connected with the driving gear by flexible shaft. The speed gear is self-contained and is connected with the motor by universal coupling, which protects the bearings, gears and clutch from all strain due to unevenness of the road.

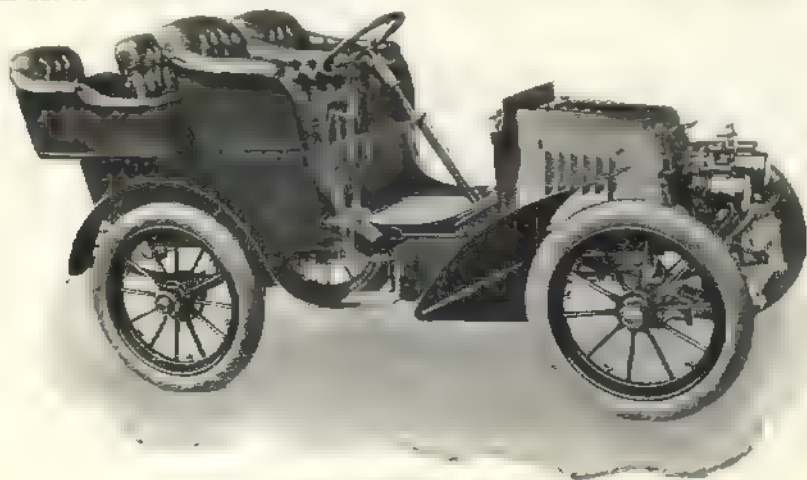
THE KUNZ GASOLINE RUNABOUT.

After a year's test trial at conditions. The Kunz Automobile Company, Milwaukee, Wis., are justified in saying strong claims for their vehicles in regard to safety, simplicity and durability.

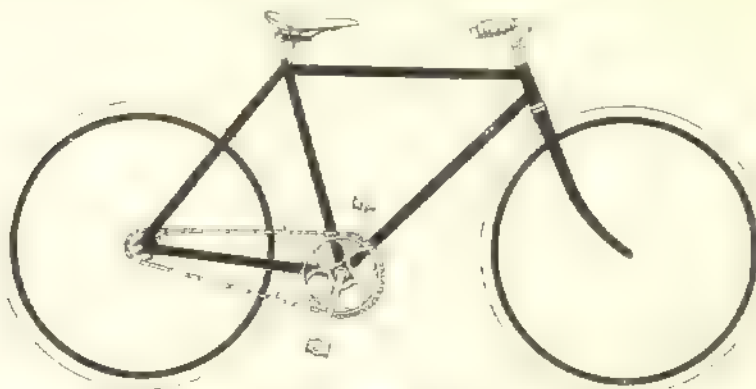


Kunz Gasoline Runabout.

We illustrate the Runabout, which weighs 750 pounds. 4 1/2 H. P. motor is used capable of speed from 75 to 1400 R. P. M., without changing flow of gasoline. Three



Peerless Automobile, Style F.



Bicycle with Regas Spring Frame

THE REGAS SPRING FRAME.

The Regas Spring Frame is claimed to make the most comfortable bicycle on the market. It is made by Regas Vehicle Co., Rochester, N. Y. Not the least attractive feature of this frame is the fact that it has no clumsy look about it, but has the appearance of an ordinary bicycle.

The illustration of the mechanical details of this frame given herewith shows clearly the mode of construction without much explanation.

Two springs rest upon bottoms securely pinned and brazed within the rear stays at a point about the centre of their length. The pistons, flexibly connected to a special seat-post cluster, play up and down through slots cut in the inside of the stays, and compress the springs more or less as the load is applied. Dust shields attached to the pistons and traveling with them serve to cover the slots, keep out the dirt and keep in lubrication. An oscillating hinge at the hanger completes this very simple and efficient device, without detracting one particle from the popular, up-to-date design now universally used.

Using the two long spring gives a wide range of movement and great flexibility, adding considerably to the comfort of the rider. The absence of vibration also prolongs

the life of the bicycle.

Those who have used the Regas Spring Frame have been amazed at the results obtained. While it has not been long before the trade it has already met with favor and promises to be a winner.

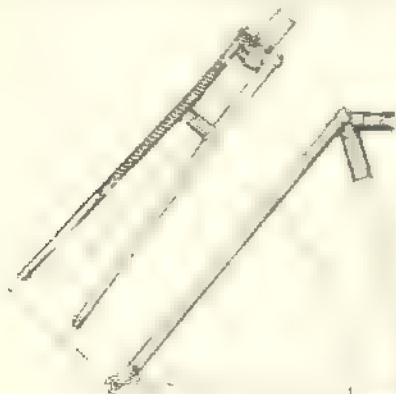
THE "DAYTON" BICYCLES FOR 1902.

The Davis Sewing Machine Co., Dayton, Ohio, have sent out their 1902 announcement regarding the "Dayton" Bicycles.

Their line includes the Dayton Roadster, Model 60, at \$35; Ladies' Dayton, Model 61, same price; Dayton Special, Model 62, at \$40; Dayton Track Racer, Model 63, at \$50; Dayton "Pace Follower," Model 64, same price; Dayton Chainless, Model 65, \$75; Dayton Tandem, Model K, at \$75. Model M at \$75, Model N at \$75 and Model O at \$80. Dayton Cushion Frame can be furnished with Models 60, 61 and 62, the price with cushion frame being \$50.

A number of options are allowed in equipments. The quality of materials in the Dayton is the best and the makers feel justified in calling it "America's Finest Wheel."

Contrary to reports of several publications, the Davis Sewing Machine Co. inform us that they have no intention at the present time of doing anything with motor bicycles in a commercial way.



SPRING FRAME

WHITE STEAM CARRIAGES.

The White Sewing Machine Co., Cleveland, Ohio, took such great pains in perfecting their vehicle before offering it to the trade that they find very few changes advisable in their 1902 model. The wheel



Front View 1902 White Steam Carriage. Base is lengthened six inches, making it six feet. The additional length is put on the front, making more room for the occupants.

As the White Steam Carriage has been very fully described in recent issues of the "Journal," it is unnecessary to describe it at this time. The principal feature of this carriage, as is well known, is the flash steam generator.



Side View 1902 White Steam Carriage.

The excellent showing made by these carriages in the New York-Buffalo endurance test was the subject of flattering comment from people prominent in the trade, and the "Whites" have lost none of their popularity in everyday use.

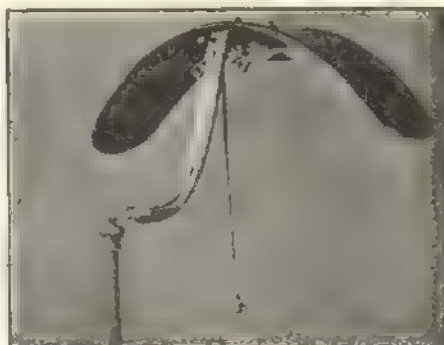
AN ASBESTOS COVERED MUFFLER.

To obviate the noise of the exhaust striking the metal sides of a muffler, the H. W. Johns-Manville Co., 100 William street, New York city, have perfected a muffler covering made of their asbestos fire felt which is a soft, flexible fabric composed entirely of pure asbestos fibres felted together in such a way that the large amount of air entrapped successfully insulates against noise and heat.

GOOLD'S COMBINATION BRAKE AND FENDER.

James Goold Co., Albany, N. Y., are the manufacturers of the combination brake and fender illustrated herewith.

One cut shows the device in detail and the other shows a mobile with the brake and fenders attached, the operator in the



Goold's Combination Brake and Fender

act of applying the brake. The standard "A" is clipped to the rear spring and axle, being held tightly in place by the same clips that hold the springs to the axle seat. The small rod "B" is operated by a bell crank on the under side of the rear axle and this in turn by the rod running forward to the lower end of the foot lever. When the foot lever is pressed down, the brake is drawn down onto the top of the tire and it is im-

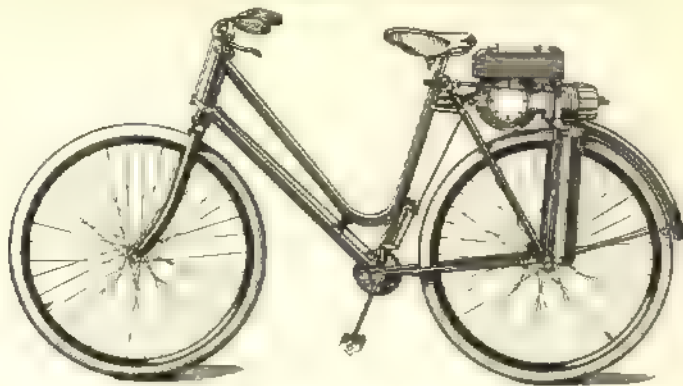


Mobile Equipped With Goold's Combination Brake and Fender.

possible to move a vehicle when this brake is set.

Parties who have used them state that they would not be without the brake even if it cost double what they paid for it. It is an absolute safeguard against accidents of all sorts and will hold the vehicle on any hill in case the other brake is insufficient or gives out for any cause.)

The Kokomo Rubber Co., Kokomo, Ind., has signed the new license agreement with the Single Tube Auto & Bicycle Tire Co., and will manufacture under Tillghast patents.



The Dorsey Motor Cycle

THE DORSEY MOTOR CYCLE.

This new motor cycle is manufactured by F. F. Dorsey, Winchester, Mass. In it the motor has two parallel cylinders, $1\frac{3}{4}$ inches diameter, supported horizontally over the rear wheel by trunnions pivoted at the top of two vertical tubes attached at their lower ends to the rear axle. The forward end of the motor is connected to the rear stays by link plates, so that by rotating the link plates the motor may be tilted. The motor has a single fly wheel, $6\frac{1}{2}$ inches diameter, covered on its face with leather. This fly wheel is between the two crank cases, and when the motor is tilted the fly wheel is brought in contact with the rear tire and rotates with it. The fuel tank, which holds three quarts, is a flat box arranged horizontally above the motor and attached to it. It is recessed below to admit the top of the fly wheel. The spark coil is attached to one of the vertical supporting tubes, and the battery is on the corresponding place on the other side. The vaporizer is enclosed in the fuel tank. The motor is on the two-cycle valveless system and is lubricated automatically from an oil reservoir enclosed in the fuel tank. A single valve between each cylinder and the fuel tank controls the supply of vapor and oil and a simple switch operates in connection with these valves to control the electricity. The circuit breaker is between the cylinders, and is operated by an eccentric on the fly wheel. Each cylinder may be used separately, or both together. This gives complete and economical control of the power. The motor is started and stopped, and speed controlled, by a single handle in the form of an ordinary brake lever at the left-hand side.

The exhaust is delivered into the rear mud guard, which is hollow and serves as a muffler.

By means of an extremely simple device a commutator is dispensed with and both cylinders are sparked by the same coil.

When the motor is running on one cylinder the cylinders can be used alternately thus keeping them always cool.

Owing to the large diameter of the front wheel there is no slipping between it and the rear tire.

When the motor is in operation the weight of the entire outfit is borne by the rear

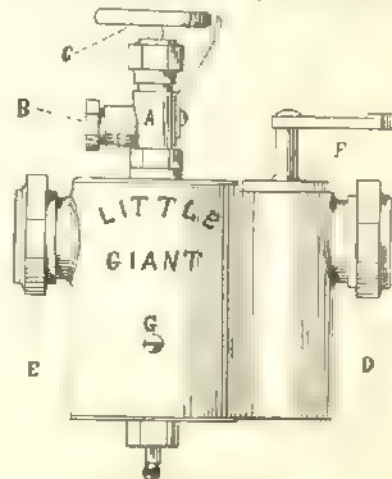
wheel and the vertical tubes. Hence the motor outfit can be added to this style of bicycle without the reinforcement of any part except the rear wheel. The motor is equally applicable to men's and women's wheels, and does not prevent mounting and dismounting in the usual manner.

One light fly wheel replaces the usual two heavy ones, and small crank cases are used. Hence the motor is very light.

In coasting the bicycle runs entirely free, and the pedals alone can be used if the rider wishes.

THE IMPROVED LITTLE GIANT VAPORIZER

The Little Giant Vaporizer is made by Thos. G. Williamson, 8 South Thirty-ninth street, Philadelphia, Pa. By reference to the accompanying illustration a definite understanding of the construction and workings of this vaporizer may be obtained. The gasoline is led to the device through the threaded sleeve (B), the flow being regulated by the valve (A). A graduated thumb screw sets the needle valve, and only infinitesimal adjustment is necessary. Gas is generated in the primary chamber (C), which is connected with the motor by union nut (D). In cold weather this chamber can, if desired, be connected with heat supply by union nut (E).



Improved Little Giant Vaporizer

1902

ACME BICYCLES

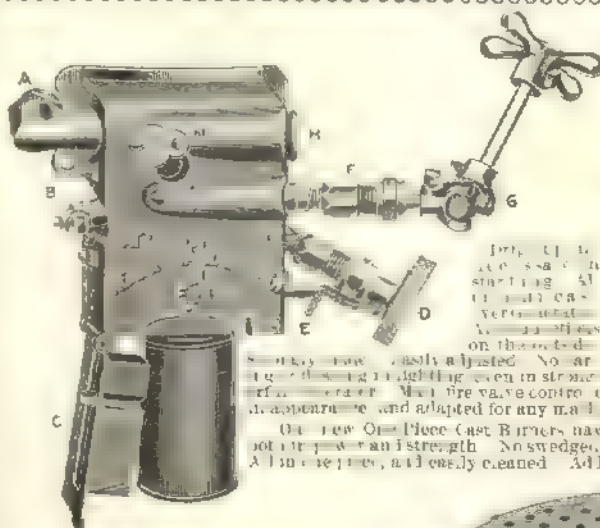
ALL HIGH GRADE, AT PRICES
THAT WILL ASTONISH YOU

ALSO

500 Soudans at \$9.00 Complete
\$5.75 STRIPPED

WRITE US

ACME CYCLE CO., - - Elkhart, Ind.



New Kelly Generator for Steam Vehicles

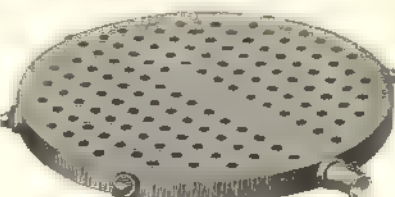
Improved
Perfect in Every
Way

Pro. of the Kelly generator is its simplicity and ease of starting. It is a simple and perfect generator, and is adapted for any machine. It is easy to adjust. No ar. It is easy to adjust. No ar. It is easy to adjust. No ar.

Our new One Piece Cast Burners, have been greatly improved, for power and strength. No swedges, ties to the construction. A fine fire, and easily cleaned. Address

THE KELLY HANDLE BAR CO.

Cleveland, Ohio, U. S. A.

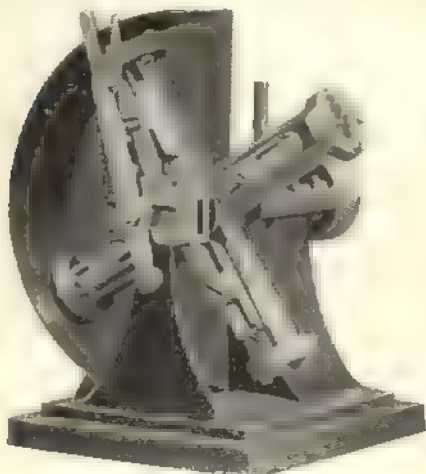


THE HILL STEAM MOTOR.

A new steam engine will shortly be placed upon the market by Clark & Matthews, Rutland, Vt. We illustrate this motor with casing removed.

It has four double-acting cylinders, which work in pairs, two of them receiving steam at the same time, but in opposite ends. The connecting rods from all four cylinders are fastened at their inside ends to a pin, which is held in position by the reversing lever. The pistons are thus held substantially stationary in regard to the bed or frame of the engine.

Supposing the several ports to be in the positions shown in cut, the steam enters inlet port to shaft, where it passes through to a port branching off to the inside end of upper right-hand cylinder and a second port which admits it to the outside end of lower left-hand cylinder. The pin to which connecting rods are fastened being thrown eccentrically off centre of axle, the effect of the steam is to cause the cylinder head of one taking steam at outside end to be crowded away from the piston while the opposite cylinder which has taken steam at inside end, has a



The Hill Rotating Cylinder Motor.

tendency to have its head approach its piston. In exerting these strains the cylinders are caused to revolve about the bed plate to the left when reversing lever is in position shown in cut. The motor is reversed by moving the pin to the opposite side of the centre, and stopped by placing it in the centre.

No fly wheel is required, and there is no dead centre. Gears are entirely done away with, so that every particle of effort is directed to the turning of the cylinders. The pistons are long, with double rings, and the crossheads or slides are made half-round in order to compensate for wear and act as guides for the connections.

The stroke can be lengthened, shortened, stopped on the centre or reversed while in operation without having to close the main steam valve. These movements can be made with great rapidity, the lever and cylinders moving simultaneously while the operation is

performed without the slightest noise or hesitation.

There are no piston rods or valve rods to pack, no valves to adjust or get out of order, and no keys or bolts to get loose. The faster it runs and harder the work required the less noise is produced.

When resting on springs the motor may be run at 2500 revolutions, and a full glass of water set upon its base will not spill a drop. It can be placed in any position in the vehicle and still do its work. When placed so that shaft is at right angles with rear axle it may be connected direct with differential gear, doing away with the chain.

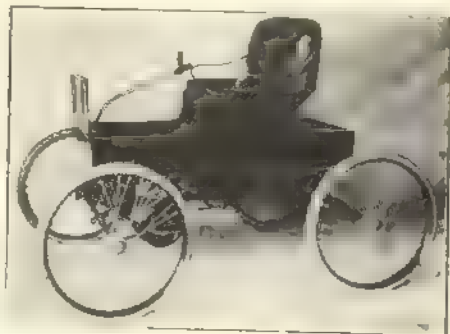
A motor weighing but eighty pounds develops 6 H. P. when running at 1000 revolutions under 90 pounds of steam pressure. By increasing steam pressure the speed and power can be increased proportionately.

Patents on this motor have been granted W. A. Hill, of Rutland, Vt., and Clark & Matthews are equipping their machine shop to manufacture them.

NORTON'S GASOLINE CARRIAGE.

James J. Norton 7 Hurd street, Lowell, Mass., is now ready to take orders for his gasoline carriages. We illustrate herewith one of his light models, which is fitted with a 3½ H. P., air-cooled motor of the 4-cycle type. The front of the motor is supported on the front axle, but all the rest of the machinery and the body rest on the springs, which extend from axle to axle. This scheme of construction takes up the vibration of the motor.

The carriage is equipped with 2-inch tires



Norton's Gasoline Carriage.

and steel rims. It has been given very thorough tests and found satisfactory. List price is \$500.

The carriage complete weighs 365 pounds and is capable of a speed of 6 to 20 miles per hour. It has two speeds forward and reverse.

The manufacturer is prepared to furnish complete vehicles, or fittings for same, in the rough or semi-finished. He will quote prices on application.

The Syracuse Automobile Club elected the following officers for 1902: President, T. D. Wilkin; vice president, Dr. Gregory Doyle; secretary and treasurer, Fred H. Elliott.

axle, and is exceedingly efficient, reducing the noise to a minimum.

The seat is extra wide, and the cushions and trimmings are all of heavy black leather. A light flexible runabout spring is used. These springs are very flexible and easy, and as no part of the machinery is connected with the body, the carriage is vibrationless, making it very comfortable.

THE HOME MOTOR BICYCLE.

The Home Motor Bicycle, which we here with illustrate, is manufactured by the Home Motor Manufacturing Co., 2047 Ridge avenue, Philadelphia. It is equipped with a 1 $\frac{1}{2}$ B. H. P. motor, and lists at \$200. The motor separate lists at \$90. As will be noticed the motor is set in a loop built in the lower tube of the frame. The carburetor is of special design and will be sold to the trade separately for \$10. The spark plug also a special design is made of porcelain with platinum points. It is sold to the general trade at \$3.00.



The Home Motor Bicycle

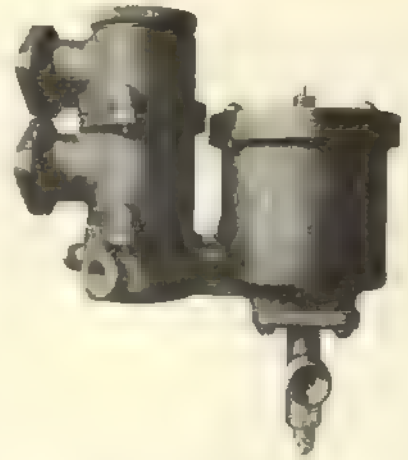
This motor bicycle is fitted with 24-inch wheels. The top tube of the frame carries the lubricating oil, which is fed to the motor by a check valve. The belt tightener is operated from the seat without dismounting and instead of turning the grip to break the electric circuit, a thumb spring contact breaker is placed convenient to the grip for this purpose. The Home Co. are also producing 2 $\frac{1}{4}$ B. H. P. motors which they list alone at \$125, and their bicycle fitted with this large motor lists at \$250.

DASEY'S NEW CARBURETOR.

The P. J. Dasey Co., 19-21 La Salle street, Chicago, Ill., are marketing a new float feed carburetor of the French type which has been given very careful and exhaustive tests on the Overland vehicles.

When the float chamber is empty the float rests at the bottom and allows the weighted levers controlling the valve to hang down, thus lifting the needle. As the oil gradually lifts the float the latter in turn raises the weighted levers. This continues until the oil feed is shut off by the valve.

The oil in the float chamber passes to a nozzle placed in the bottom of the chamber on the other side of the carburetor, in which the mixing actually takes place, the nozzle being so set in relation to the air intake and



Dasey's New Carburetor.

outlet to engine as to spray a tiny stream of oil at each suction stroke of the piston, the spray being heavy or light according to the speed of the engine.

At the base of the carbureting chamber, but not connected with the inside of same, is a small chamber with three pipe connections. This chamber is under the base of the nozzle and surrounds the oil passage leading to the nozzle. It is for the purpose of heating the tube and nozzle during cold weather.

The carburetors now ready are provided with one inch in and outlet connections and are suitable for engines single, double or quadruple cylinders, up to 4 or 4 $\frac{1}{2}$ -inch diameter by 4 to 5-inch stroke.

Larger sizes are now being prepared and will be ready for the market within the next 30 days.

The 1-inch size sells for \$12.00, and the 1 $\frac{1}{2}$ -inch size will sell for \$15, with liberal discounts to the trade in quantities.

MARSH MICA PLUGS AND FLAT MOTOR CYCLE BELTS.

Motor Cycle Manufacturing Co., Boston, Mass., who make the Marsh Motor Cycle have perfected a new ignition plug made of carefully selected mica and guaranteed for one year.

This company think that mica will in the near future be used exclusively for ignition plugs, claiming that it is a non-conductor, is practically unbreakable, and can be taken apart and reassembled almost indefinitely for cleaning purposes.

They are using a special double-thick flat belt which it has been proved has great tensile strength, having stood the strain of 2275 pounds before breaking. By use of the flat belt no plumping of the leather with alum is necessary as sometimes is done in making round belts to save waste.

In selecting material for Marsh belts only a small portion of the hide is used, which makes this belt expensive in initial cost, but cheap in the long run.

THE MAYO MOTOR CYCLE FOR 1902.

The Mayo Motor Bicycle manufactured by the Mayo Damper Co., of Pottstown, Pa., has been simplified and improved in every detail, and their 1902 model is a beauty and is the result of a great deal of experimenting and testing.

Both inlet and exhaust valves are easily removed for cleaning by simply removing a screw at the top of the valve chamber. The connecting rod is of brass. The ex-



The Mayo Motor Cycle

haust cams are hardened and best steel is used in all bearings throughout. The motor used on their regular model is 1½ H. P., weight of motor is 20 pounds with cast base, 18 pounds with aluminum base.

The motor is quite narrow, although powerful enough for the work required of it. It is clamped at the crank hanger, the lowest and strongest part of the frame.

The gasoline tank holds two-thirds of a gallon, which is sufficient for a hundred mile run when fitted with the Mayo carburetor. This is a reliable mixer, which delivers the proper amount of mixture and otherwise gives satisfaction. This carburetor is sold separately for \$5.00.



The Mayo Carburetor

Cylinder is oiled automatically by a sight feed oiler which feeds evenly and regularly. By using the Mayo muffler nearly all noise is eliminated and there is practically no back pressure noticeable on motor.

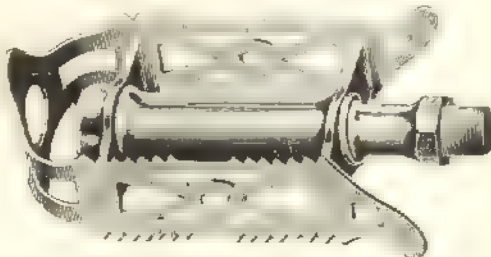
A three-cornered belt is used, tightened by idler that runs on ball bearings. The best obtainable dry cells are used, the current regulated by a lever.

Frame is made of 18-gauge tubing, with drop forged crown. Rear wheel is equipped with New Departure or Morrow Hub Castor Brake. The complete motor bicycle weighs but 85 pounds. They sell complete machines or sets of castings and desire to

place agencies for the Mayo Motor, Mayo Motor Cycle and Mayo Carburetor.

THE PEDALS WERE MIXED.

On page 146 of our January issue in the article describing the pedals manufactured by the Bickel Manufacturing Co., we inserted an electrotypic of the Genesee pedal, manufactured by John R. Keim, Buffalo.



The Genesee Pedal Made by J. R. Keim

N. Y. in mistake where the Bickel low price pedal should have been. We desire to call the attention of the trade to the fact that John R. Keim is the manufacturer of the Genesee pedal there shown, which we again illustrate herewith.

1902 PACKER BICYCLES READY.

The Packer Cycle Co., Reading, Pa., is ready to make deliveries of their 1902 Packer bicycles. Their discounts have been increased this year.

They are offering a bevel gear chainless in both men's and women's models, with 1¼ inch main tubing. Leland & Faulconer's gears are used. Price is \$75.

The Semi-Racer weighs 20½ pounds and has 1-in. main tubes, new taper or bell-shaped head, Fauber perfection hanger, oval rear forks and stays, handsome new two-plate fork crown, flush on the outside. Price is \$50.

The light road model weighs 22½ pounds, has 1-in. top tube, 1½-in. seat post tube and lower head tube, oval rear forks and stays, new taper or bell shaped head, Fauber standard hanger, new fork crown of three plate construction, flush all around. Price of this model is \$45. This model is also made for women.

The medium grade in men's and women's has 1 in. main tubes, oval rear forks and stays, one-piece cranks, which are removable without disturbing cases, and triple-plate fork crown. Hubs are very neat and narrow to conform to the 1 in tubing. Price is \$35 on this model.

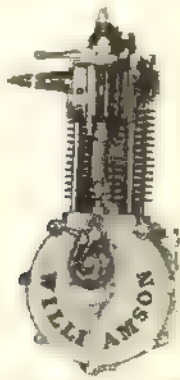
The equipments include Indianapolis lemons, Hussey handle-bars, Curtis pedals, Sager saddles, Palmer, Goodrich, Hartford and Wabash tires. The \$35 wheel is finished in bright vermilion. The higher priced models are finished in the standard "Packer" Astoria red.

"I think your journal is one of the best trade papers I ever had." Albert Solvay 12 East Twenty fourth street, New York.

WILLIAMSON'S CYCLE MOTOR.

Thomas G. Williamson, 8 South Thirty-ninth street, Philadelphia, Pa., who manufactures the Little Giant Vaporizer described elsewhere in this issue, has just gotten out a light motor for use on motor cycles. It is 16 inches high and weighs 20 pounds with aluminum castings. It is accurately balanced and has large radiating surface.

A distinctive feature of this motor is a



Williamson's Cycle Motor.

cut out which adds to ease of operation, economizes fuel and keeps the motor cool. With this motor the machine may be coasted down hills with the same facility as an ordinary free wheel.

There is a device which prevents the sparking points from becoming foul and by actual test the ignition apparatus has sparked as high as 2000 charges per minute with out missing.

Motor is sold complete or castings in the rough or machined. Blue prints are sent with each set of castings.

MERKEL MANUFACTURING CO NOW A CORPORATION.

Mr. George Merkel, of Milwaukee, Wis., has disposed of his business to the Merkel Manufacturing Co., a company incorporated under the laws of the State of Wisconsin and capitalized at \$32,000. At a meeting of the stockholders, January 3, the following officers were elected to serve for the year 1902: Theo. Jonas, president; O. C. Fehling, vice president; W. J. Merkel, secretary and treasurer; J. F. Merkel, manager. Mr. George Merkel will not take an active part in the affairs of the company, owing to the pressure of other business. The new concern is particularly fortunate in getting Mr. Jonas for president. Mr. Jonas is considered the most successful bicycle man in that city.

The new company will continue in the same lines as their predecessor, i. e., hubs, hydro-carbon motors and motorcycle sets, and after a short time will build small generating sets consisting of a hydro-carbon motor directly connected to a dynamo. These are to be used for small isolated lighting plants. The 1902 Merkel motor-cycle is now ready for the market. A catalogue may be had for the asking.

P.-T. MOTOR CO. HAVE A NEW FACTORY.

The P.-T. Motor Co., having their office at No. 2312 Broadway, New York city, have just moved into their new factory at No. 322-324 Seventh avenue, corner Twenty-eighth street, New York city. They have just installed a very complete plant, consisting of lathes, drill presses and other machine tools; also their own dynamo for electric lighting, etc. They have excellent facilities for general repair work on gasoline and electric automobiles. They report business as booming and have orders ahead at present to keep the shop busy for the next three months. Their latest productions in small motors are their Model No. 4, 2 H. P. bicycle motor, which is only 4 1/4 inches wide over all; weight, 23 pounds, and their Model 10 bicycle motor for pacing machines and tandem. This is 3 to 3 1/2 H. P., 17 1/2 inches high and crank case is 3 1/2 inches thick by 2 1/2 inches on diameter; total width of motor, 4 1/2 inches. It was designed for use on bicycles and has been made extremely narrow and compact. Its weight is about 38 pounds. They are also working on a line of 4, 6 and 8 H. P. single cylinder motors in which an entirely new system of air cooling is adopted.

TO MANUFACTURE THE DE LONG MOTOR BI-CYCLE.

The Industrial Machine Co., of Phoenix, N. Y., has been incorporated under the laws of New York State to manufacture coaster brakes, motor cycles, automobiles and hardware specialties. Capital stock, \$25,000. This company will manufacture the DeLong Motor Cycle described in one of our recent issues. The first machines will be delivered about February 1. Catalogues are now out to press and will be out in a few days.

Mr. G. E. DeLong, who for several years was connected with the bicycle business in New York city, is general manager for the company.

THE E. P. BLAKE CO. ADDS NEW DEPARTMENT.

The E. P. Blake Co., 57 Sudbury street Boston, Mass., have added a tires and sun-lins department in charge of Mr. R. D. Clark, formerly of Brown & Wales. They have also added to their force of salesmen Mr. C. J. Lawton, formerly with United Supply Co., and Mr. Geo. A. Winslow, formerly with Horace Partridge and the Ever Johnson Arms and Cycle Co.

FIGHT OF THE BOSTON JOBBERS.

Some one started a rumor in Boston that the Willis Park Row Bicycle Co., of New York city, were going to supply the Equitable Distributing Co., the retailers' syndicate, with goods at jobbers' prices, and we understand the New England Jobbers' Association had a special meeting to decide how long they would have any jobbing business, providing the rumor was true and to decide what was best to be done in the matter.

THE "REGAS" SPRING FRAME

Bicycle built

A PERFECT REVELATION

to those who ride it for the first time.

THE "REGAS"
SPRING FRAME
makes the most comfortable
Bicycle built

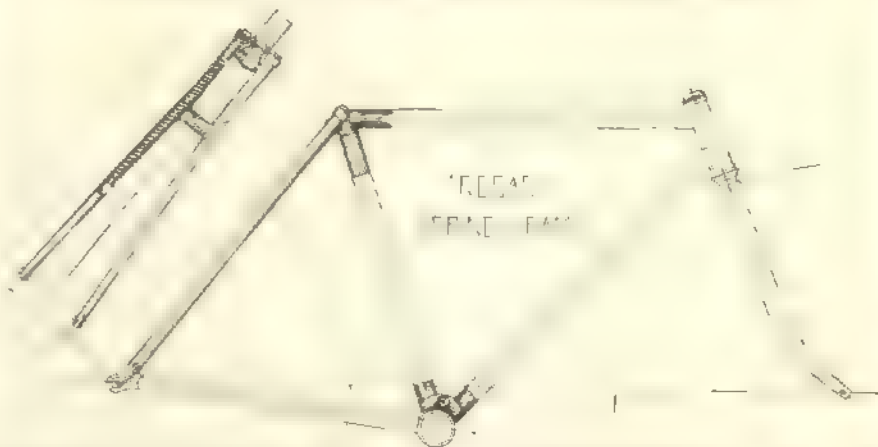
A PERFECT
REVELATION
to those who ride it for the
first time.

REGAS

**LOOKS LIKE
ANY BICYCLE**
and sells at sight. The
first man who "gets there"
gets an order.

**SELLS AT A
POPULAR PRICE**
and will, therefore, increase
the sale of bicycles.

ANY UP-TO-DATE MANUFACTURER WILL FURNISH BICYCLES WITH
"REGAS" SPRING FRAMES



"REGAS" VEHICLE CO., ROCHESTER, N. Y.



Woodruff Light Stanhope

WOODRUFF MOTOR VEHICLES.

In the Woodruff Light Stanhope the manufacturers have endeavored to make a light, powerful carriage, with sufficient durability and reliability to withstand all-round usage. It is made by the Woodruff Motor Carriage Co., Akron, O. It has single-cylinder, four-cycle gasoline engine of 6 B. H. P., capable of 800 to 900 R. P. M., giving a speed to the carriage of 20 miles per hour. The body and the motor are placed upon three elliptic springs. Body is nicely upholstered in leather, painted in two colors and striped.

The tank capacity is sufficient for a hundred-mile run under ordinary conditions. Three speeds forward and reverse are provided, all operated with one lever.

The rear axle is one continuous piece, running from one wheel to the other, with a sleeve running from one wheel to the differential, which makes a very rigid and strong axle.

The carburetor is of the float feed atomizing type, which when once set does not have to be readjusted.

The ignition is by jump spark of primary batteries.

The cooling is done by circulating pump and radiating coils, and the machine has ample provision for lubrication.

The machine is finely muffled and has as little vibration as can be expected. It has sufficient power for all ordinary grades and road.

It is fitted with 3x30-inch wheels all around; weighs 1000 pounds; lists at \$900.

Automobile dash or ordinary dash can be fitted as desired. Desires seat can be fitted and cost for \$25 additional.

Light delivery wagons can be made by a change of bodies. Price, \$1050.

These carriages are all put up with wheel-steering device operated by the foot and

have ample brakes. All nicely finished throughout with the best of material and workmanship. Full wagon tread.

The Woodruff Runabout has the same general description as above. It has 4-horse power engine, lever-steering, body fitted to long side springs. Water circulation, oil gasoline, ignition and carburetor same as above. Sun and planet system of gearing, furnishing two speeds ahead and one in reverse, all controlled by one lever. Speeding device same as above. Speeded to 20 miles per hour, capable of climbing 18 per cent. to 20 per cent. grades. Wheels are 2 x 28-inch all around, with tread of 4+ inches. Rear axle is continuous piece, same as above. Weight, 750 pounds. A very quiet running machine. Price, \$700, with top, \$775.

THE RANDALL STEAM CARRIAGE.

This vehicle is equipped with an engine of the manufacturer's own design, the Oswego Boiler, the Kelly Generator and the Locke "Beats-All" Regulator. An Eastman



G. N. Randall's Steam Carriage

FISK TIRES

Tire Economy

Good tires, like refined gold, command a certain price.

It's easy enough to get up a tire to sell at an attractive price. It may look all right all tires look alike to the uninitiated—but the vital points, the materials and methods of construction, will only come out in actual service.

The value is not permanent

When you buy Fisk Tires you get an article in which materials and methods of construction are combined, regardless of any expense that would improve. You are paying just what such a tire is worth—the lowest price at which a really good tire can be sold—the highest price you need pay in order to get the best.

If you go shopping around trying to get something "just as good" for less money, you get lots of experience but very little true satisfaction, and you lose money in the end.

FISK RUBBER COMPANY

CHICOPEE FALLS, MASS.

BRANCHES and AGENCIES

Boston, 604 Atlantic Ave.

Springfield, 40 Dwight St.

New York, 83 Chambers St.

Philadelphia, 916 Arch St.

Syracuse, 423 So. Clinton St.

Buffalo, 28 W. Genesee St.

Detroit, 252 Jefferson Ave.

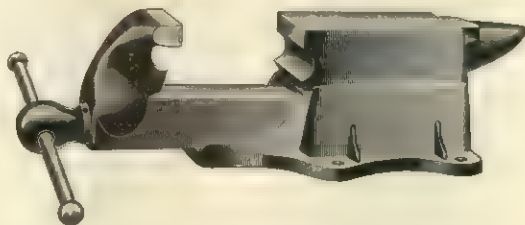
Chicago, 34 State St.

San Francisco, 114 Second St.

HANKINS 1125 B'WAY N.Y.

FISK RUBBER CO.
CHICOPEE FALLS MASS.

ANVILS AND VISES.

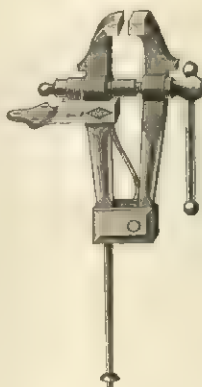


AUSTIN'S ANVIL AND VISE.

No. 3—Austin's Anvil and Vise, Japanned, Hardened Face and Jaws, 3 Inch Adjustable Jaws, Double Pipe Holding Attachment, Holds Pipe $\frac{1}{4}$ to 3 inches, Opens $4\frac{1}{2}$ inches, ... Each, \$4 00

Weight 33 Pounds.

SOLID BOX BLACKSMITHS' VISES.



SOLID BOX BLACKSMITHS' VISE.

WROUGHT STEEL. POLISHED JAWS.

Nos.	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
Size of Jaw, inches, . . .	3 $\frac{1}{4}$	3 $\frac{3}{4}$	4	4 $\frac{1}{4}$	4 $\frac{3}{4}$	4 $\frac{3}{4}$	5	5	5 $\frac{1}{4}$	5 $\frac{3}{4}$	5 $\frac{3}{4}$	5 $\frac{3}{4}$	5 $\frac{3}{4}$	5 $\frac{3}{4}$	6
Weight, lbs.	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
Each, ...	\$11.00	10.00	10.50	11.00	11.50	12.00	13.00	14.00	15.00	16.00	17.50	18.50	20.00	21.00	22.00

ANVILS.

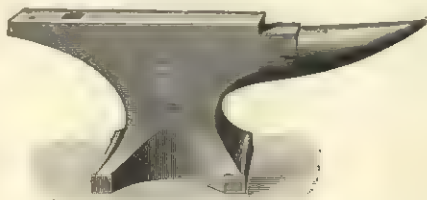


ARM AND HAMMER BLACKSMITH ANVIL

SOLID WROUGHT FORGED. CRUCIBLE STEEL FACE.

Arm and Hammer—General Blacksmith Anvil, 80 to 100 lbs., ... Per Pound, \$0 12

The Arm and Hammer Anvils are Warranted.



PETER WRIGHT AND SONS'.

Peter Wright and Sons' Blacksmith Anvils, { Weights, lbs., 84 to 500 70 to 84 60 to 70 50 to 60 Under 50
 { Per Pound, \$0.12 advance 1 ct 1½ cts 2 cts 3 cts

We do not warrant above Anvils, except that they are made by Peter Wright and Sons.

EAGLE BLACKSMITH ANVILS.

Eagle—Blacksmith, Cast Iron with a Steel Face, Anvils Weighing 100 to 800 lbs., ... Per Pound, \$0 09

Eagle—Blacksmith,	{ Nos.	0	1	2	3	4	5	6	7	8	9
	{ Weight, lbs.,	10	15	20	30	40	50	60	70	80	90
	{ Each,	\$2.25	2.75	3.00	3.75	4.25	5.00	5.30	6.00	7.00	8.00

Eagle Anvils are Warranted.

BLACKSMITH TONGS.



Blacksmith Tongs—Straight Lipped,	{ Length, inches,	16	18	20	22	24	26
	{ Per Dozen,	\$7 75	8 75	9 75	11.00	13 50	14.00

BARBED FENCE WIRE.



BAKER PERFECT, TWO-POINT.

FLAT BARBS, SHORT AND SHARP.

2-Point Cattle or Regular, Galvanized, Barbs 5 inches Apart,	Per 100 Pounds, \$
2-Point Hog or Thickset, Galvanized, Barbs 5 inches Apart,	Per 100 Pounds,
2-Point Cattle or Regular, Painted, Barbs 5 inches Apart,	Per 100 Pounds,
2-Point Hog or Thickset, Painted, Barbs 5 inches Apart,	Per 100 Pounds,



GLIDDEN, TWO POINT.

ROUND BARBS.

2-Point Cattle or Regular, Galvanized, Barbs 5 inches Apart,	Per 100 Pounds, \$
2-Point Hog or Thickset, Galvanized, Barbs 5 inches Apart,	Per 100 Pounds,
2-Point Cattle or Regular, Painted, Barbs 5 inches Apart,	Per 100 Pounds,
2-Point Hog or Thickset, Painted, Barbs 5 inches Apart,	Per 100 Pounds,



LYMAN, FOUR-POINT.

ROUND BARBS.

4-Point Cattle or Regular, Galvanized, Barbs 5 inches Apart,	Per 100 Pounds, \$
4-Point Hog or Thickset, Galvanized, Barbs 5 inches Apart,	Per 100 Pounds,
4-Point Cattle or Regular, Painted, Barbs 5 inches Apart,	Per 100 Pounds,
4-Point Hog or Thickset, Painted, Barbs 5 inches Apart,	Per 100 Pounds,

Barbed Fence Wire Averages about 16 1/2 feet to the Pound.

ESTIMATES FOR BARBED WIRE FENCE BUILDING.

GIVING THE WEIGHTS OF WIRE REQUIRED FOR DIFFERENT SIZE FIELDS.

Size of Field, Acres,	1	20	40	80	160	320	640
Number of Miles,	2 1/16 (80 Rods)	1 1/8 (340 Rods)	1 (320)	1 1/2	2	3	4
Average Number of Pounds, One Strand of Wire,	88 1/2	270	360	540	720	1080	1440

One Reel of Wire will Require About 1 1/2 Pounds of Staples.

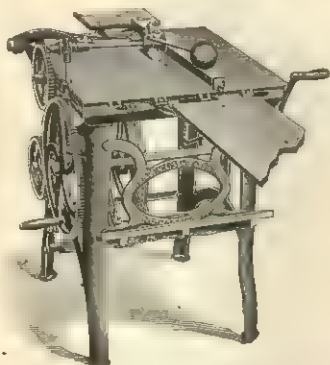
GIVING THE NUMBER OF POSTS, WEIGHT OF STAPLES AND WIRE REQUIRED FOR ONE MILE OF FENCE.

Distance Between Posts, feet,	8	10	12	16 1/2	20	25	30	33
Posts, Number to Mile,	600	528	410	320	264	211	176	160
Staples, pounds,	8 1/2	7	5 1/2	4	3 1/2	3	2 1/4	2
Wire, One Single Strand, pounds,	360	360	360	360	360	360	360	360

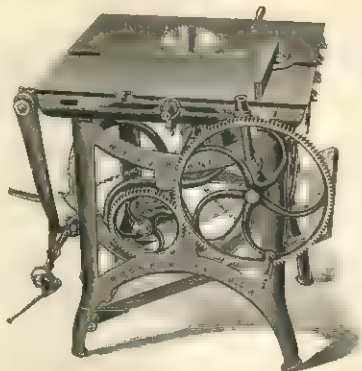
GIVING THE DISTANCE FROM GROUND FOR MORE THAN ONE STRAND OF WIRE.

Two Strands of Wire, 22 and 44 inches from ground.	Four Strands of Wire, 12, 24, 36 and 48 inches from ground.
Three Strands of Wire, 16, 30 and 48 inches from ground	Five Strands of Wire, 8, 15, 24, 36 and 48 inches from ground.

FOOT POWER CIRCULAR SAWS.



Cut Shows Machine Arranged for Ripping with the Self Feed Mechanism in Position



Cut Shows the Machine with the Self Feed Arrangement and Rip Gauge Thrown Back with the Table Clear for Cut-Off Work

No. 4—Barnes' Circular Saw, Complete with Self-feed, with two Ten Inch circular saws (one each rip and cut-off),
Each, ...

Boxed for Shipment. Weight, 550 lbs.

\$60 00

No. 4—With countershaft for steam power, instead of foot power, ... Each, \$65 00

Boring Attachment, for No. 4, ... Each, 10 00

Countershaft and Belt, for No. 4, ... Each, 10 00

Universal Mitre Gauge, for No. 4, ... Each, 10 00

The machine is very strong and rigid, and the workmanship throughout first-class. The table is of iron, planed perfectly true. Size of table 30x30 inches. The large range of work which the machine will do is indicated by the following enumeration of its various arrangements and combinations.

First. It can be used as a hand and foot power circular rip saw with self feed, and this feed can be regulated properly for hard, soft, or thick or thin material and is self-adjusting for lumber of different or uneven thickness. With a 10-inch saw lumber up to 3½ inches thick can be ripped, or with a 12-inch saw up to 4½ inches.

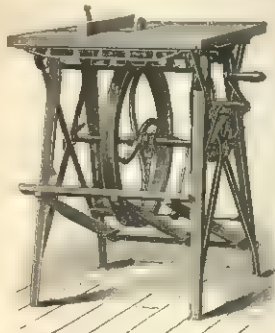
Second. It can be used as a cross-cut saw. The self-feed mechanism can be instantly thrown back to the rear of the machine, as also the rip gauge, leaving the table perfectly clear for cut-off work. The self-feed mechanism can be put in position for use or thrown back out of the way, without requiring the use of a wrench or the removal of any bolts or nuts. The cut-off gauge can be set at any required angle. The speed of the saw can be readily changed so as to give a high speed for cross-cut work or a slower speed for ripping.

Third. The machine can be used for rabbeting and grooving, and the high speed at which the cutter heads can be run insures smooth and clean cut work. The self-feed can be used for grooving and rabbeting as well as when the machine is used for ripping. Cutter heads are also used for gating and dadoing, and with knives of suitable width for planing. The table can be adjusted up and down so as to regulate the depth of grooves and rabbets.

Fourth. The machine is provided with boring attachment, which is the same as used on the combined machine.

While the machine is designed particularly to be used by hand and foot power, it can be driven equally well by steam or other suitable motive power and we shall therefore be prepared to furnish the machine arranged with countershaft and belt pulley when so desired.

COMBINED CIRCULAR AND SCROLL SAW.



This machine combines a Circular and Scroll saw, the Circular saw being the machine proper, with the Scroll saw as an attachment. We are therefore prepared to furnish the machine with or without the Scroll saw, as may be preferred.

This combination is absolutely perfect, as neither the Circular nor the Scroll saw interferes in the slightest degree with the successful operation of the other; and thus practically combining two machines in one, we are able to make the price considerably lower than would be possible were they distinct and separate machines.

The capacity of the Scroll saw is the same as that of No. 7 Saw (see page 184) the warranty is to what it is used to, and applying equally to this.

For all ripping, cutting to length, cut-off work, etc., the Circular saw of the Combined Machine is invaluable. In short, for general use, no more profitable investment can be made by any carpenter or cabinet-maker, or almost any wood-worker, than this Combined Machine with its different combinations and attachments.

The Circular saw, while remaining on its mandrel, can be taken at once out of the way when the Scroll saw is to be used. The machine is set in its bearings in such a manner as to enable the operator to take the whole (mandrel and saw) from the machine in an instant.

All the varieties of joint-work can be done truly and rapidly. The table can be handily adjusted up or down by a cam, to allow any desired depth of cut being made by the saws or cutter tools. The Circular saws are six inches in diameter, and reach 1½ inches above the table. A seven or eight-inch saw can be used if desired.

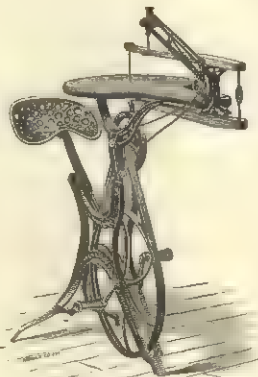
Emery wheels, in size up to one inch face by six inches in diameter, can be used to good advantage on this machine.

The table of the machine is twenty-eight by thirty inches.

Barnes' Combined Circular and Scroll Saw, including Two circular saws and twelve assorted scroll saws, ... Each \$40 00
Barnes' Circular Saw only, including two circular saws, one rip and cross cut, ... Each, 35 00

Boxed for Shipment, Weights 350 lbs.

SCROLL SAWS.



Cut Shows Boring Attachment
No. 2, VELOCEPEDE.

No. 2 Barnes', Complete with Boring Attachment,
with One Dozen Blades and One $\frac{3}{16}$ Drill,
Each, ... \$20 00

No. 2--Barnes', Without Boring Attachment, with
One Dozen Blades, ... Each, 18 00
Weight, 90 lbs. Boxed for shipment, 130 lbs.

The swing around the blade under the arm is 24 inches;
the length of blade is 7 inches; the table and arms are of
hard maple; the frame is of cast iron; the balance and drive
wheels run on steel arbors.

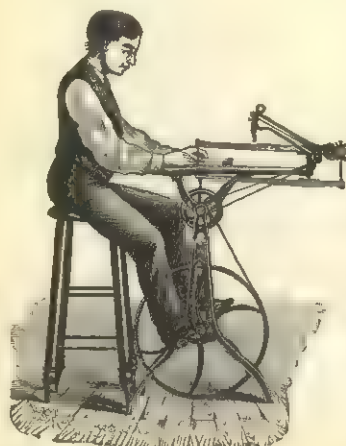


No. 7, IMPROVED

No. 7--Barnes', Complete with One Dozen Blades,
Each, ... \$15 00

Weight, 55 lbs. Boxed for shipment, 80 lbs.

This machine is designed for practical service in the work
shops of carpenters and builders, cabinet makers and other
wood workers. The ordinary rate of speed when sawing is
from 800 to 1,200 strokes per minute. The saw leaves the
work as smooth as it is possible for any saw to do, and can be
taken out and replaced in an instant for inside work. The
swing around the blade under the arm is 24 inches; the length
of the blade is 7 inches; the table and arms are made of hard
maple; the frame is made of cast iron, strong, yet light;
the balance wheel runs on a steel arbor.



AMATEUR SCROLL SAWS.

No. 1C--Barnes' Amateur, Complete with Boring Attachment,
Each, ... \$10 00

No. 1--Barnes' Amateur, Without Boring Attachment, Each, 8 00

Weight, 40 lbs. Boxed for shipment, 60 lbs.

This machine will cut pine of any thickness up to $1\frac{1}{2}$ inches, and harder
woods of proportionate thickness. It admits a swing of 18 inches around
the blade, and accomplishes every branch of sawing within the range of
general amateur work.

LOOSE SLEIGH BELLS.



RIM SLEIGH BELL

Rim Sleigh Bells,	Nos.	1	2	3	4	5	6	7	8	9	10	11	12	13	14
Common, Polished,	Diameter at Rim, inches,	1 $\frac{1}{8}$	1 $\frac{1}{4}$	1 $\frac{3}{8}$	1 $\frac{1}{2}$	1 $\frac{5}{8}$	1 $\frac{3}{4}$	1 $\frac{7}{8}$	2 $\frac{1}{8}$	2 $\frac{1}{4}$	2 $\frac{3}{8}$	2 $\frac{1}{2}$	2 $\frac{3}{4}$	2 $\frac{7}{8}$	3
	Per Dozen,	\$0 38	.52	.68	.82	.98	1.10	1.35	1.57	1.90	2.25	2.60	3 06	3.60	4.50

SHAFT BELLS.



No. 154, SHAFT BELLS.

No. 154 Shaft Bells, On Leather Straps, Consists of Six No. 1 Tinned House Bells, Two Straps, Three Bells on a Strap, ... Per Pair (Six Bells), \$0 80

NECK OR BODY STRAPS.



POLISHED RIM SLEIGH BELLS, ASSORTED SIZES.

WIRE FASTENED ON HEAVY RUSSET, LINED WITH GRAIN LEATHER.

Neck or Body Straps,	Nos.	26	30	36	44
	Number of Bells on Strap,	9	11	13	15
	Nos. of Bells,	1 to 5	1 to 6	1 to 7	2 to 9
	Per Strap,	\$0 81	1.00	1.24	1.86

BODY STRAPS.



POLISHED RIM SLEIGH BELLS, ASSORTED SIZES.

WIRE FASTENED ON HEAVY RUSSET, LINED WITH GRAIN LEATHER.

No. 059—Body Straps,	19 Bells, Four No. 2, Four No. 3, Four No. 4, Two No. 5, Two No. 6, Two No. 7, One No. 8,	Each, \$2 00
No. 070—Body Straps,	23 Bells, Four No. 5, Four No. 6, Four No. 7, Two No. 8, Two No. 9, Two No. 10, Two No. 11, Two No. 12, One No. 13,	Each, 5 00

TINNED RIM SLEIGH BELLS.

No. 174—Body Straps,	Tinned Rim Sleigh Bells, Thirty No. 2 Bells, Riveted to Strap, Plain Black Leather,	Per Strap, \$2 40
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STOCK BELLS.



STOCK BELL.

	Nos.	0	1	2	3	4	5	6	7	Hog
Height, Without Loop, inches.	7	6 $\frac{1}{4}$	5 $\frac{3}{4}$	5	4 $\frac{1}{2}$	4 $\frac{1}{4}$	3 $\frac{3}{4}$	3 $\frac{1}{2}$	2 $\frac{3}{4}$	2 $\frac{3}{8}$
Length at Mouth, inches.	6	5 $\frac{1}{4}$	5	4 $\frac{1}{2}$	3 $\frac{3}{4}$	3 $\frac{1}{4}$	2 $\frac{3}{4}$	2 $\frac{1}{2}$	2 $\frac{1}{4}$	2 $\frac{1}{8}$
Width at Mouth, inches.	3 $\frac{1}{2}$	3 $\frac{1}{4}$	3 $\frac{1}{4}$	2 $\frac{3}{4}$	2 $\frac{1}{2}$	2 $\frac{1}{4}$	2 $\frac{1}{4}$	2 $\frac{1}{4}$	1 $\frac{3}{4}$	1 $\frac{3}{8}$
Weight per Dozen, pounds.	26	24	20	14	10	7	5	4	3	2
Per Dozen,	12.00	10.00	8.00	6.00	5.00	4.00	3.00	2.60	2.00	1.50

SHEEP BELLS.



No. 2.

No. 2—Strapped Sheep Bells, Bell Metal.
Per Dozen, \$3 50

BELL COLLARS.



BELL COLLAR.

Bell Collars, { Inches, 1 1 $\frac{1}{4}$ 1 $\frac{1}{2}$ 1 $\frac{3}{4}$ 2
Per Dozen, \$2 55 3.90 3.85 4.60 5.50

TEAM BELLS.



LOOP TEAM BELL (HORSE CAR).

CAST, ROUGH FINISH, BELL METAL.

	Nos.	4/H	6/H	8/H
Loop Team Bells, (Horse Car), Diameter, inches.	5	3 $\frac{1}{4}$	4	
Weight Per Dozen, pounds.	6 $\frac{1}{2}$	9 $\frac{1}{2}$	13	
Per Pound,	\$0.63	.52	.52	

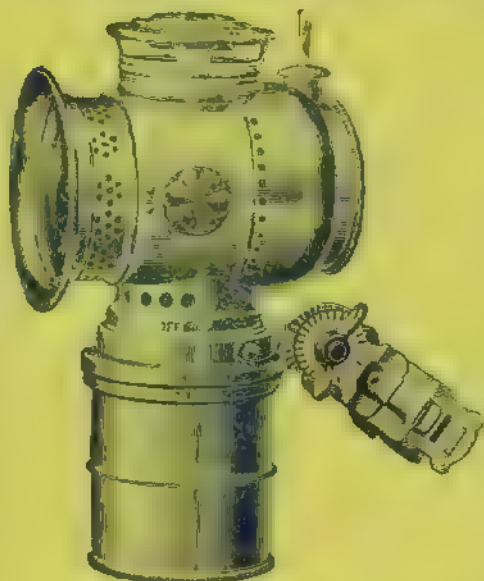


BUCKLE AND STRAP TEAM BELL.

POLISHED BRASS.

	Nos.	6	7
Team Bells, Diameter, inches.	3 $\frac{1}{16}$	3 $\frac{3}{4}$	
Weight Per Dozen, pounds.	8 $\frac{1}{2}$	8 $\frac{3}{4}$	
Per Dozen,	\$4 10	4.45	

The Breckenridge 1902 Acetylene Gas Lamp



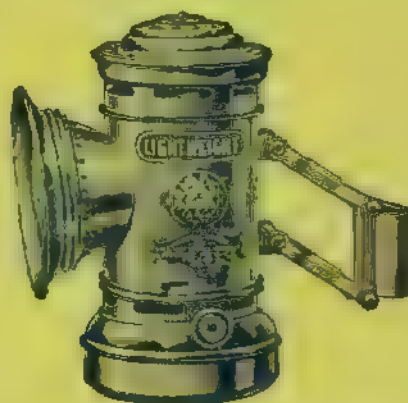
Excellence of the Highest
Character in Every Feature

A Bicycle Gas Lamp to give
general satisfaction must have
these requirements, viz.:

1. *Simplicity of construction throughout.*
2. *It must be easy to operate.*
3. *It must be easy to clean.*

The Breckenridge is built on common sense principles, and fulfills the above requirements in every particular.

The Light Weight Oil Lantern



The Standard Oil Lamp
of the world.
Post very well in oil or paraffin.
A quarter of an ounce of oil will
burn for an hour.

Rubber Cement

Rim "

Plugging "

Chain Lubricant

Graphite *Almond Oil*

Cycle Oil *Lantern Oil*

Enamels *Wood Rim Varnish*

Oven Thermometers *Brazing Compound* *Brazing Spelter*

Brazing Wire *Vulcanizers* *Vulcanizing Compound*

Soapstone *Torches* *Plugs* *Patches* *Waxed Tire Lacing*

**THE NATIONAL CEMENT AND
RUBBER MANUFACTURING CO.**

TOLEDO, OHIO, U. S. A.

Jifoid, Chainine, Oiline.

Jifoid



Jifoid is the very finest **Quick-Repair Cement**. It will stop a leak in a single tube tire without the use of a patch or plug.

Besides being a quick-repair cement, **Jifoid** is also

A Rubber Cement—It will cement a patch.

A Rim Cement—It will cement a tire to either a wood or metal rim.

A Plugging Cement—It will set a plug in a single tube tire.

$\frac{3}{4}$ x 4 tube, needle top, is popular size for bicycle riders. Furnished in any size cans for repair shops.

A 1-ounce tube of Jifoid with needle top, a small bottle of Oiline and a tube of Chainine are all that the bicycle rider needs for repairing tires, lubricating and cleaning his bicycle and chain.

Jifoid, Chainine, Oiline.

Chainine In Brush Top Tubes



Chainine is a first-grade Chain Lubricant in paste form.

Can be readily applied to chain without soiling the hands.

One dozen $\frac{1}{2}$ x 4 tubes a paste-board display box or standing on show case.

A 1-ounce tube of Jifoid with needle top, a small bottle of Oiline and a tube of Chainine are all that the bicycle rider needs for repairing tires, lubricating and cleaning his bicycle and chain.

SEE PAGE 37 FOR DISTRIBUTING AGENTS



A Chain Hoist Properly Made

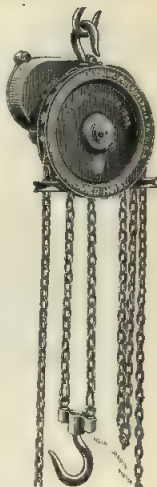
loads easily and quickly and that it shall be long lived.

The Keystone Spur-Gear'd Chain Hoist embodies every possible feature that can serve a useful hoist purpose. It is withal, simple, there are but few parts and these parts have a design in relation to the whole hoist, there is no weak spot, no place for trouble to commence. In the choice of material used and in the workmanship going to shape this material to a useful hoist end, nothing but the best that money and brains can secure are employed.

One or two features of this hoist have exposition here:

Gears are of steel and they're cut gears, not cast; lift wheels have square holes fitted to square shafts, they have got to turn or hold, as the case may be; there are no pins, no keys; load wheels are reversible, take them off and change sides if the teeth wear; load is under full control at any point and all work is easily done. This hoist merits the critical investigation we invite. Had you rather have screw hoist, we can supply them. Details are at your disposal.

The Keystone Spur Gear'd Chain Hoist.

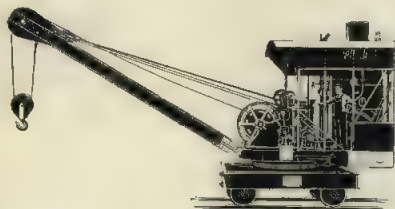


Edwin Harrington, Son & Co., Inc.

Manufacturers of Machine Tools,

No. 15th St. and Pennsylvania Ave.,

Philadelphia, Pa., U.S.A.



ALL...

"Brownhoist" Locomotive Cranes ARE

Equipped with the well known **"Grafton Slip-Ring."** The value of the "Slip Ring" on a Locomotive Crane cannot be over-estimated.

It is a perfect safety cushion attached to the Rotating Mechanism. The cushion effect is directly proportional to the load lifted. The quickest possible manipulation is secured without danger of straining any parts or stripping the gear teeth.

Actual practice demonstrates a Locomotive Crane fitted with this mechanism has from 20 to 40 per cent greater daily working capacity than a crane not so equipped, and shows a 50 per cent. yearly reduction in repairs. All "Brownhoist" Locomotive Cranes have this attachment.

One large concern in this country has in use over **forty of our ten ton Locomotive Cranes.**

THE BROWN HOISTING MACHINERY COMPANY

Works: Cleveland, Ohio, U. S. A.

NEW YORK, 26 Cortlandt St.

PITTSBURG, Frick Bldg. ng.

LONDON, 59 Victoria St., S.W.

Brown & Sharpe Mfg. Co.

PROVIDENCE, R. I., U. S. A.

To apply the most economical system of manufacturing,
It is necessary to have and to constantly use

ACCURATE GAUGES.

THESE ARE MADE BY US.



Standard Internal and External Cylindrical Gauges

Standard Reference Disks

Standard Caliper Gauges

Standard End Measuring Rods

ALL RECOGNIZED

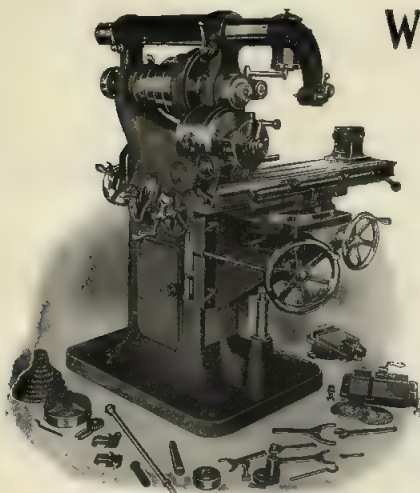
STANDARDS FOR ACCURACY

Special circular describing these gauges,
together with catalog, mailed to any address.

New York Office, 136 Liberty Street

Philadelphia Office, 444 The Bourse

Chicago Office and Store, 23 S. Canal Street



HENDEY-NORTON UNIVERSAL MILLER.

What is in a Name?

The name "HENDEY-NORTON" is a GILT-EDGE GUARANTEE that the machine it stands for is worthy of your particular attention and investigation.

Note the Good Things This Machine Has Always Had:

Norton System of Gearing for Feed Changes; giving eighteen of them.

Taper-bearing, Self-oiling, Self-adjusting Spindle construction.

You have found both these features of inestimable value in Hendey-Norton Lathes.

Annular Form of Housings for overhanging arm do not disturb its alignment in clamping.

Dividing Head with travel through an arc of 210 degrees—15 degrees below horizontal in either direction.

Feed Reversals operated from side of knee, within easy reach of operator.

All Feeds AUTOMATIC, and may be operated SIMULTANEOUSLY.

Telescopic Ball-bearing Elevating Screw.

Extended information in 16-page half-tone booklet, just out.

The Hendey Machine Company,
Torrington, Conn., U.S.A.

J. W. Creger Agency, Phila. Agt. Manufacturing, Maywell & Moore, Gen. Agts.
Chas. Swan & Co., London, Agents for Great Britain.

SHEET METAL STAMPING

DIFFICULT WORK
A SPECIALTY

LARGE FACTORY
FACILITIES

THE AUTOMOBILE AND CYCLE PARTS CO.
SMITH STAMPINGS FACTORY
MILWAUKEE, WIS.

COLD ROLLED STRIP STEEL

ALL WIDTHS, GAUGES
AND TEMPER

IN COILS OR CUT
TO LENGTH

THE AUTOMOBILE AND CYCLE PARTS CO.
SHEET STEEL MILL
SOUTH CHICAGO, ILL.

NICHOLSON FILE COMPANY, Providence, R. I., U. S. A.

Manufacturers of all varieties of

FILES



RASPS

You cannot expect your men to do good work when you supply them with poor files. Let them have their own choice and see if they do not select one of our brands.

**Nicholson,
Kearney & Foot,**

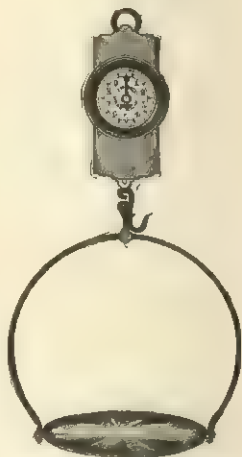
**Arcade,
American,**

**Great Western,
McClellan,**

**Eagle,
J. B. Smith,**

**"X. F."
Gold Medal.**

CIRCULAR SPRING BALANCES.



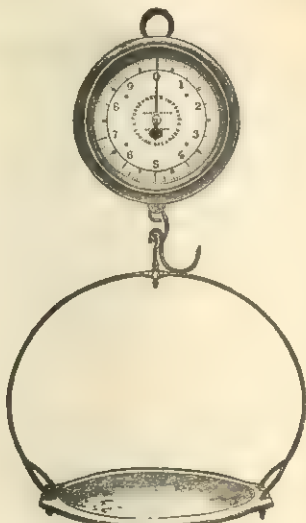
No. 121.

GLASS SASH, WHITE FRONT, 5-INCH DIAL, WITH TIN PAN,
TINNED IRON BOWS AND SWIVEL.

No. 121—Circular Balance, Weighs 30 lbs. by 1 oz.,
Each, \$8 25

No. 122—Circular Balance, Weighs 60 lbs. by 2 oz.,
Each, 9 75

Packed One in a box.



No. 153.

NICKEL PLATED, GLASS SASH, PATENT PORCELAIN PAN,
NICKEL PLATED BOWS AND SWIVEL.

No. 153—United States Market Balance,
Weighs 80 lbs. by 1 oz., 8-inch Dial and
10-inch Sash, ... Each, \$10 00

Packed One in a box.

SOUTHERN COTTON SCALES.



No. 1430, SOUTHERN COTTON.

No. 1430—Southern Cotton scale, Weighs 700 lbs., Scales complete with Japanned Beams, . . .

Each, \$

SCALE BEAMS.



JAPANNED, GILT FIGURES.

Scale Beams,	Pounds,	150	200	250	300	360	400	500	600	700	800	1000
	Poise with Beams, 1 each, pounds,	1-4	1-4	2-8	2-8	4-8	3-12	4-16	8-16	5-20	6-24	8-32
	Weight Per Case, pounds,	60	60	103	125	140	160	210	218	248	280	140
	Each,	\$1.60	1.60	1.90	2.10	2.50	2.90	3.50	4.00	4.66	5.30	4.00

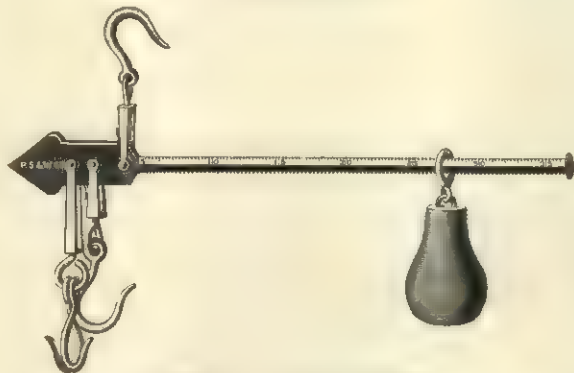
150 to 500 Pounds, packed Six in a case, with Poles; 600 to 800 Pounds, Six Beams in a case, Poles separate; 1000 Pounds, Two in a case, Poles separate.

EXTRA SCALE BEAM POISES.



Extra Poises,	Pounds,	1	2	3	4	5	6	8	12	16	20	24	32
	For Scale Beams,	{ 150	250	400	150, 200	700	800	250, 300, 360	400	500	700	800	1000
		{ 200	300		360, 500			600, 1000		600			
	Each,	\$0.25	.30	.40	.50	.60	.70	.85	1.10	1.50	1.90	2.40	3.10

STEELYARDS.



FARMER'S OR HART'S PATTERN.

BALANCED HEADS AND STOPS, HEADS AND POISES PAINTED RED, POLISHED MALLEABLE IRON HOOKS, TESTED TO MARKED OR STANDARD WEIGHTS.

Farmer's Steelyard,	Pounds,	50	100	150	200	250	300
	Per Dozen,	\$9.00	10.00	12.00	16.00	18.00	21.00

50 Pounds Weight by Ounces, 100 Pounds Weight by Two Ounces, other sizes by Four Ounces.

Packed One-half Dozen in a wood box.

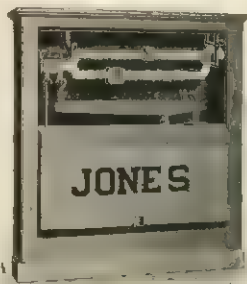
WAGON SCALES.



BUFFALO HAY, COAL AND WAGON SCALE.

WITH DOUBLE BRASS BEAM, GRADUATED BY $2\frac{1}{2}$ -LB. MARKS.

No.	Capacity, tons.	Platform.	Edge of Platform to Beam Rod.	Weight Each pounds.	Each.	No.	Capacity, tons.	Platform.	Edge of Platform to Beam Rod.	Weight Each pounds.	Each.
No. 2200	3	14 x 7 ft.	1 ft. 8 $\frac{1}{2}$ in.	680	\$145 00	No. 2222	10	16 x 8 ft.	2 ft. 2 in.	1475	\$300 00
No. 2202	4	15 x 8 ft.	2 ft. 1 $\frac{1}{2}$ in.	780	165 00	No. 2224	10	18 x 9 ft. 4 $\frac{1}{2}$ in.	2 ft. 6 in.	1300	315 00
No. 2204	4	22 x 8 ft.	2 ft. 0 $\frac{1}{2}$ in.	780	225 00	No. 2226	10	20 x 8 ft. 8 $\frac{1}{2}$ in.	2 ft. 5 in.	1300	330 00
No. 2206	5	15 x 8 ft.	2 ft. 1 $\frac{1}{2}$ in.	880	200 00	No. 2228	10	22 x 8 ft.	2 ft. 0 $\frac{1}{2}$ in.	1300	330 00
No. 2208	6	18 x 8 ft.	2 ft. 1 $\frac{1}{2}$ in.	900	250 00	No. 2230	12	16 x 8 ft.	2 ft. 2 in.	1800	350 00
No. 2210	6	18 x 9 ft. 4 $\frac{1}{2}$ in.	2 ft. 6 in.	900	250 00	No. 2232	15	16 x 8 ft.	2 ft. 2 in.	1700	340 00
No. 2212	6	22 x 8 ft.	2 ft. 0 $\frac{1}{2}$ in.	1050	240 00	No. 2234	15	22 x 9 ft. 8 $\frac{1}{2}$ in.	2 ft. 8 in.	1700	400 00
No. 2214	8	16 x 8 ft.	2 ft. 2 in.	1300	275 00	No. 2236	15	24 x 9 ft.	2 ft. 5 in.	1700	400 00
No. 2216	8	18 x 9 ft. 4 $\frac{1}{2}$ in.	2 ft. 6 in.	1300	285 00	No. 2238	20	16 x 8 ft.	Truck Scale Pattern.	2300	400 00
No. 2218	8	20 x 8 ft. 8 $\frac{1}{2}$ in.	2 ft. 5 in.	1400	300 00	No. 2240	20	22 x 8 ft.	2 ft. 0 $\frac{1}{2}$ in.	2300	450 00
No. 2220	8	22 x 8 ft.	2 ft. 0 $\frac{1}{2}$ in.	1400	300 00						

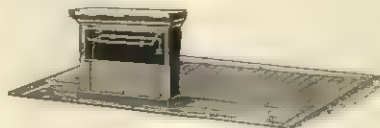


RENSSELAER WAGON SCALE.

DOUBLE BEAM AND BEAM BOX, UNITED STATES STANDARD TEST WEIGHTS.

Rensselaer Wagon Scales,	Nos.	Capacity, tons.	Size of Platform, feet.	Each,	3/R	4/R	5 R
					8	4	5
					15 x 8	15 x 8	15 x 8
					\$100.00	105.00	110.00

Shipping Weight Each 550 Pounds.



POPULAR FARM SCALE.

ALL WORKING PARTS MADE OF WROUGHT AND CAST IRON, CAST STEEL BEARINGS, DOUBLE BEAM AND BEAM BOX.

Popular Farm Scales,	Nos.	Capacity, tons.	Size of Platform, feet.	Weight Each, pounds.	Each.	3/P	4/P	5/P
						8	4	5
						14 x 8	14 x 8	15 x 8
						450	450	500
						\$70.00	75.00	80.00

This Scale is especially adapted for Farm use, where a cheap scale is wanted to do rough weighing.

Timbers not furnished with Wagon Scales. All Wagon Scales from Factory only.

SCALES.



No. T78, "DOMESTIC."

No. T78—Weighs 12 Pounds, Polished, Tin Scoop, made of Steel, Japanned and Striped, Brass Upright Dial, Double Upright Supports.

Weight Each, boxed, 8½ Pounds.

Each, \$3 80

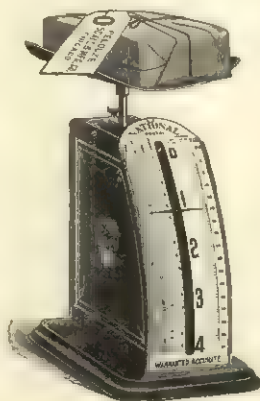


"PETITE."

"Petite," Confectionery—Weighs 4 Pounds by ½ ounce, made throughout of Brass, Nickel Plated.

Each, \$4 00

POSTAL SCALES.



"NATIONAL" POSTAL.

THESE SCALES INDICATE INSTANTLY THE EXACT AMOUNT OF POSTAGE IN CENTS REQUIRED FOR LETTERS, BOOKS, NEWSPAPERS AND MERCHANDISE TO ANY PART OF THE UNITED STATES AND CANADA.

"National" Postal—Weighs up to 4 Pounds by ½ ounce, made of Steel, Handsomely Nickel Plated throughout, Size 7½ inches high, 3¾ inches wide, 6½ deep.

Each, \$4 00

Weight Each, boxed, 12½ Pounds.



"U. S." POSTAL.

"U. S." Postal—Weighs up to 4 Pounds by ½ ounce, made of Steel, Handsomely Nickel Plated, throughout.

Each, \$3 30

Weight Each, boxed, 1½ Pounds.

MATCH SAFES.



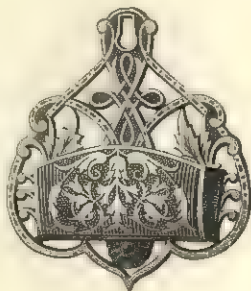
TWIN.

Twin—Match Safes, $4\frac{1}{2} \times 5$ inches, Japanned Tin,
Assorted Colors, . . . Per Dozen, \$0 90



No. 2, SQUARE

No. 2—Square Match Safes, $3\frac{1}{2} \times 2\frac{1}{2} \times 1\frac{1}{2}$ inches.
Self-closing, Japanned, Tin, Per Dozen, \$0 90



No. 70.

No. 70— $4 \times 1\frac{1}{4}$ inches, Kahala Bronzed,
Per Dozen, \$1 25
Packed One-half Dozen in a box.



No. 10.

No. 10—Cast Iron, Copper Bronzed, Per Dozen, \$2 25
Packed One-half Dozen in a box.



No. 1.

No. 1— $3\frac{1}{4} \times 2\frac{3}{4}$ inches, Japanned, . . . Per Dozen, \$2 00
Packed One Dozen in a box.



No 60

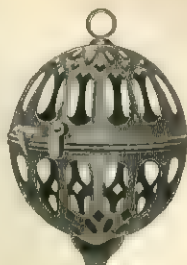
No. 60—Eagle Pattern, Kahala Bronzed,
Per Dozen, \$4 00
Packed One-quarter Dozen in a box.

TWINE BOXES.



STAND.

No. 2—Large, Kahala Bronzed, . . . Per Dozen, \$5 50



HANGING.

No. 5—Medium, Japanned, . . . Per Dozen, \$2 10
 No. 6—Medium, Kahala Bronzed, . . . Per Dozen, 2 30
 No. 7—Medium, Copper Bronzed, . . . Per Dozen, 2 60
 No. 1—Large, Kahala Bronzed, . . . Per Dozen, 3 75

Packed One-half Dozen in a box.



No. 3.

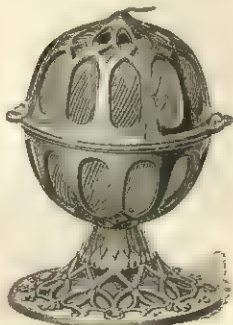
No. 3—Large, Kahala Bronzed, . . . Per Dozen, \$3 25

Packed One-half Dozen in a box.



No. 131.

No. 131—Bee Hive, Japanned, 4x4½ inches inside, . . . Per Dozen \$5 50
 Packed One-twelfth Dozen in a package.

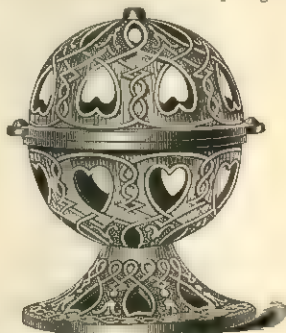


No. 25

No. 25—Bronzed, . . .

. . . Per Dozen, \$5 40

Packed One-third Dozen in a box.



No. 65.

No. 65—Imperial Bronze, . . . Per Dozen, \$7 65

For Twine Holder for Cone Twine see Page 557.

CHALLENGE SAFETY RAZORS IN CASES.



No. 1/C.

No. 1/C—Contains One Challenge Razor, Strop and Stropping Machine, put up in a Leatherette Case, ... Each, \$4 00



Cut-throws No. 2/P

PEARL.

No. 2/P—Pearl, Contains One Complete Challenge Razor and One Extra Blade, put up in a Fine Leather Case, Chamols and Satin Lined, ... Each, \$4 00

No. 3/P—Pearl, Contains One Complete Challenge Razor and Two Extra Blades, put up in a Fine Leather Case, Chamols and Satin Lined. Each, 5 00



No. 7/S, SAPPHIRE.

No. 7/S—Sapphire, Contains One Complete Challenge Razor and Six Extra Blades, put up in a Fine Leather Case, Chamols and Satin Lined. Each, \$10 00



No. 3/D, DIAMOND.

No. 3/D—Diamond, Contains One Complete Challenge Razor, Two Extra Blades, One Strop and Stropping Machine, One Folding Brush, One Piece of Soap, put up in a Fine Leather Case, Chamols and Satin Lined. Each, \$12 00

RAZOR STROPS.



No. 100.

No. 100 Single Swing Razor Stropps, Oiled Leather, 22 x 2 inches, ... Per Dozen, \$3 00



Cat Shows No. 310.

Nos. 310 AND 320.

No. 310 Double Swing Razor Stropps, Black Leather, Cotton Web, Nickel Plated Swivel, Wood Handles, 22 x 2 inches, ... Per Dozen, \$4 50

No. 320 Double Swing Razor Stropps, Oiled Leather, Cotton Web, Nickel Plated Swivel, Leather Handles, Attached with Nickel Plated Loop, 22 x 2 inches, ... Per Dozen, 5 00



No. 330

No. 330 Double Swing Razor Stropps, Oiled Leather, Prepared Web, Nickel Plated Swivel, Padded Leather Handles, 22 x 2 inches, ... Per Dozen, \$3 00



Nos. 340 AND 350.

No. 340 Double Swing Razor Stropps, Buff Leather, Prepared Web, Nickel Plated Swivel, Padded Leather Handles, Attached with Nickel Plated Loop, 22 x 2 inches, ... Per Dozen, \$7 00

No. 350 Double Swing Razor Stropps, Oiled Porpoise Hide, Prepared Web, Nickel Plated Swivel, Padded Leather Handles, Attached with Nickel Plated Loop, 24 x 2 1/4 inches, ... Per Dozen, 9 00



Nos. 360 to 380.

No. 360 Double Swing Razor Stropps, Oiled Horse Hide, Prepared Web, Removable Nickel Plated Swivel, 23 x 2 1/4 inches, ... Per Dozen, \$9 00

No. 370 Double Swing Razor Stropps, Genuine Horse Hide, Oiled, Linen Hose, Removable Nickel Plated Swivel, 24 x 2 1/4 inches, ... Per Dozen, 12 00

No. 380 Double Swing Razor Stropps, Genuine Horse Hide, Buffed, Linen Hose, Removable Nickel Plated Swivel, 24 x 2 1/4 inches, ... Per Dozen, 14 00



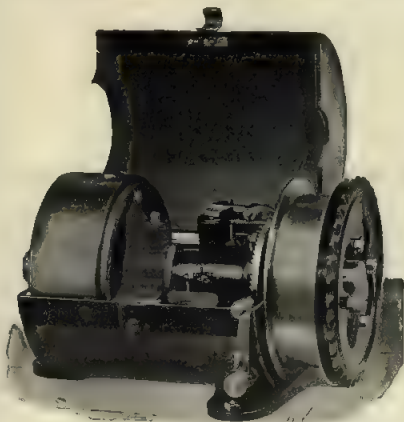
Nos. 390 AND 400.

No. 390 Double Swing Razor Stropps, Oiled Horse Hide, Prepared Web, Patent Reversible Swivel, 22 x 2 1/4 inches, ... Per Dozen, \$10 00

No. 400 Double Swing Razor Stropps, Shell Horse Hide, Linen Hose, Finished in Black, Patent Reversible Swivel, 23 x 2 1/4 inches, ... Per Dozen, 18 00

Packed One-half Dozen in a box.

The Coronation of "The Monarch" of the Engine Room



at last an accomplished fact. North, East, South and West, owners of steam and electric plants have crowned it with this testimony. "The Monarch Engine-Stop and Speed Limit System absolutely prevents every kind of accident."

They have acclaimed "The Monarch" the ruler of the engine room.

Its crowning features are:

Simplicity in construction,
Adaptability to any engine,
Promptness of action because automatic,
Absolute security from engine disasters,
Increased efficiency of engine.

Why not enthrone "The Monarch" on your engines now, before possible break-downs, instead of after?

Consolidated Engine Stop Co.

100 BROADWAY,
New York.

For the Prompt and Efficient Conduct of Business.



Here are a few extracts from letters we have received from users of the Clark Telephone System. "The nature of our business requires that several different persons in different parts of our buildings frequently have to consult together, while at other times strict privacy between two or more talking together is requisite. We find that both of the requirements are met by your system without trouble or loss of time." — "Any station can make as many calls as required, in quick succession, no time being lost in ringing off." — "We can make ten or more calls as quickly as one." — "There is no waiting for central." — "It ought to replace all 'hall and wait' systems." — "For the prompt and efficient conduct of our business, we have found it indispensable."

The Clark System has this to commend itself to users: Avoids all central office expense; avoids complexity of wiring, insures privacy; any number of users can talk at the same time. Full details in Catalog 7.



The Clark Automatic Telephone Switchboard Co.

15 Custom House St.,

Providence, R.I., U.S.A.



Don't Forget We make 'em Up To Date

Throats 4 to 48. Single or Double.

—ALSO—

Blacksmith Punches, Shears, and Bar Cutters,
Forging Machines, Heavy Plain Millers for manu-
facturing purposes
Special Trolley Wheel Machinery

The Cheap Part is the Price.

Just a Postal for Our Story.

Bremer Machine & Tool Company
Kalamazoo, Mich.

Scroll Saws

Trump Bros. Machine Co., Mfrs.,
Wilmington, Del., U.S.A.
For sale by Charles Churchill & Co., Ltd., London, Eng.

WOOD PATTERNS,

ESTIMATE FURNISHED.

H. B. OLWSTEAD & CO.,
87 Frankfort St., New York.

ROW BOATS.



SQUARE STERN, CLINKER BUILT.



DOUBLE END, CLINKER BUILT.

	Length.	Beam.	Depth.	Shipping Weight.	Each.
No. 50.	10 feet.	37 in.	12 in.	130 lbs.	\$44 00
No. 51.	12 "	39 "	13 "	150 "	46 00
No. 52.	14 "	40 "	14 "	200 "	50 00
No. 53.	16 "	42 "	15 "	225 "	56 00
No. 54.	18 "	44 "	16 "	366 "	64 00

	Length.	Beam.	Depth.	Shipping Weight.	Each.
No. 60.	10 feet.	37 in.	12 in.	130 lbs.	\$44 00
No. 61.	12 "	39 "	13 "	150 "	46 00
No. 62.	14 "	40 "	14 "	200 "	50 00
No. 63.	16 "	42 "	15 "	225 "	56 00
No. 64.	18 "	44 "	16 "	365 "	64 00

Regardless of the exceptionally low prices at which these boats are sold, they are undoubtedly the finest line on the market. While light in weight, they are very durable, and only the finest material and workmanship are used in their construction. The keels, stems, stern-posts, transoms, ribs, walings, fenders, knees and breast hooks, are made of oak, and the planking, seats and linings of the best clear cypress. All fastenings are copper-pated. They are painted three coats, strictly pure lead and oil throughout, in bright, durable colors.

All boats are equipped with galvanized malleable iron oar-locks and seat braces, best ash oars, and painted iron stem bands.

Prices include crating for shipment.

One pair of oars and oar-locks are furnished with 10 and 12 foot boats, two pairs for 14 and 16 foot boats, and three pair for 18 foot boats.

EXTRAS FOR ROW BOATS.

Oil Finished Rudders, with Brass Fittings,	Each,	\$4 00
Oil Finished Lazy Backs,	"	2 50
Polished Brass Stem Bands,	"	2 00
1 1/2 inch Polished Brass Letters for Name Plates,	"	30

CANOPY-TOP LAUNCHES.



Complete with machinery, copper gasoline tank placed securely under bow deck, polished brass chocks, cleats, deck plates, boat hook, one pair oar locks, ash oars and tie line.

Canopy-top made of cypress, matched and beaded, with inside ceiling finished natural wood in oil and spar varnish, and outside covered with canvas, well painted. Blue and white striped duck curtains made to roll up and down, all around cockpit, and trimmed with scalloped edge border. Roof supported by turned oak stanchions, finished natural wood and set in polished brass sockets.

No. 100	—18 foot long, 4 1/2 foot beam; seating capacity, 6 persons; speed, 8 miles per hour; draught, about 17 inches; with two horse-power "Standard" St. Louis Engine,	Each \$ 477 00
No. 120	—20 foot long, 4 foot 8 inch beam; seating capacity, 8 persons; speed, 8 miles per hour; draught, about 19 inches; with four horse-power "Standard" St. Louis Engine,	585 00
No. 125	—25 foot long, 5 1/2 foot beam; seating capacity, 12 persons; speed, 9 miles per hour; draught, about 24 inches; with six horse-power "Standard" St. Louis Engine,	750 00
No. 130	—30 foot long, 6 1/2 foot beam; seating capacity, 16 persons; speed, 10 miles per hour; draught, about 28 inches; with eight horse-power "Standard" St. Louis Engine,	970 00
No. 135	—35 foot long, 7 foot beam; seating capacity, 21 persons; speed, 10 miles per hour; draught, 32 inches, with eight horse-power "Standard" St. Louis Engine,	1060 00

Write for Descriptive Catalog of Open and Cabin Cruising Launches.

BOAT OARS.



PLAIN.

No. 10—Boat Oars, straight blade, best quality of ash, lengths, 6 to 10 feet,

No. 11—Boat Oars, straight blade, spruce, plain, lengths, 7, 7½ and 8 feet,

Spruce Oars leathered, \$1.75 per pair extra.

Per Foot, \$0 12

18



COPPER TIPPED.

No. 15—Boat Oars, copper tipped, best quality of ash, lengths, 6 to 10 feet,

No. 16—Boat Oars, copper tipped, spruce, spoon blade, leather and copper tipped, lengths, 6 to 10 feet,

Per Foot, \$0 13

20

CANOE PADDLES.



No. 18—Canoe Paddles, double, best quality of ash, jointed, 8 feet,

Each, \$3 50

ROW LOCKS.



SOCKET.



SIDE PLATE.



NORTH RIVER.



ROUND SOCKET.

Socket Row Locks, galvanized, with ear {

Nos.

Size between horns, inches,

Per Pair,

20

11

\$0 25

21

2

.30

22

24

.40

23

24

.50

Side Plate Row Locks, galvanized,

Nos.

Size between horns, inches,

Per Pair,

24

14

\$0.25

25

13

.30

26

2

.40

No. 27—North River Row Locks, galvanized, with wrought iron pin, size between horns, 2 inches,

Per Pair, \$0 40

No. 28—Round Socket Row Locks, galvanized, size between horns, 2 inches,

30



PATENT SWIVEL.

No. 29—Patent Swivel Row Locks, galvanized, size between horns, 1½ inches,

Per Pair, \$0 65

No. 30—Patent Swivel Row Locks, galvanized, size between horns, 2 inches,

1 00

CROW BARS.



WEDGE POINT.

No. W—Wedge Point, Solid Steel, Assorted Weights 10 to 30 lbs., Length 4 to 5 feet, ... Per Pound, \$



PINCH POINT.

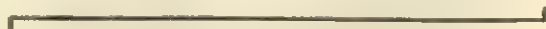
No. P—Pinch Point, Solid Steel, Assorted Weights 10 to 30 lbs., Length 4 to 5 feet, ... Per Pound, \$

COAL MINERS' TOOLS.



"ALTON" SINGLE-END SCRAPER.

Single End, Made of $\frac{3}{8}$ -inch Round Norway Iron, 5, 6 and 7 feet long, ... Per Dozen, \$3 00



"ALTON" DOUBLE-END SCRAPER.

Double End, Made of $\frac{3}{8}$ -inch Round Norway Iron, 5, 6 and 7 feet long, ... Per Dozen, \$3 50



NEEDLES

Steel Needles, Highly Polished, 6 feet long, ... Per Dozen, \$12 00

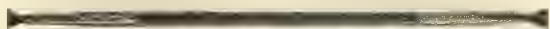
Copper Needles, Best Copper, Extra Hardened, $\frac{1}{2}$ -inch Paper, Highly Polished, 6 feet long, ... Per Dozen, 30 00



DRILLS, SINGLE BIT.

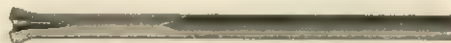
No. IS Iron Tamp, $8\frac{1}{2}$ inches, Best Cast Tool Steel on Bit End, 1-inch Round Rod, $2\frac{1}{4}$ -inch Bit, 6 and 7 feet lengths, ... Per Dozen, \$18 00

No. CS—Copper Tamp, 1-inch Round Iron, $2\frac{1}{4}$ -inch Bit, 6 inches Copper on Tamping End, 8 inches of Steel on Bit End, 6 and 7 feet lengths, ... Per Dozen, 33 00



DRILLS, DOUBLE BIT.

No. ID—Iron Tamp, $8\frac{1}{2}$ -inch Best Cast Tool Steel on each end, 1-inch Round Iron, $2\frac{1}{4}$ -inch Bit, 6 and 7 feet lengths, ... Per Dozen, \$30 00



TAMP ENDS.

Tamp Ends, Twelve inches of 1-inch Round Iron, 6 inches of Copper with Tamp on End, ... Per Dozen, \$20 00

BLASTING BARRELS.

Blasting Barrels, Made of Spring Steel with $\frac{1}{8}$ -inch hole, 5, 6, 7 and 8 feet long, ... Per Foot, \$0 08

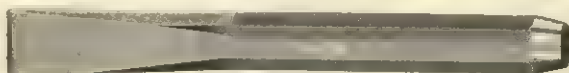
COLD CHISELS.



W. H. CO., HAND COLD CHISEL.

EXTRA QUALITY TOOL STEEL, OCTAGON, OIL FINISHED, CAREFULLY FORGED AND TEMPERED.

W. H. Co., "IXL,"	Width of Cutting Edge, inch,	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{5}{8}$	$\frac{3}{4}$	$\frac{7}{8}$	1
	Length, inches,	5 $\frac{1}{4}$	6 $\frac{1}{4}$	7	7 $\frac{1}{2}$	7 $\frac{3}{4}$	8
	Weight, per dozen lbs.,	24	4	7	11	15	20
	Per Dozen,	\$2.50	3.00	4.00	5.25	7.50	9.00



V. & B. COLD

V. & B.—Solid Cast Steel, Octagon,	Inches,	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{5}{8}$	$\frac{3}{4}$	$\frac{7}{8}$	1
	Per Dozen,	\$2.00	2.50	3.50	4.75	6.75	8.00

$\frac{3}{8}$ inch One Dozen, Balance One-half Dozen in a box.

BELT PUNCHES.



W. H. CO., BELT PUNCH, TO DRIVE.

SOLID STEEL, DRILLED AND REAMED, OCTAGON SHANK, OIL FINISHED AND POLISHED PIPE.

W. H. Co., "IXL," Belt or Saddlers',	Nos.	1 to 6	7 to 10
	Per Dozen,	\$2.50	3.00

One Dozen in a wood box.

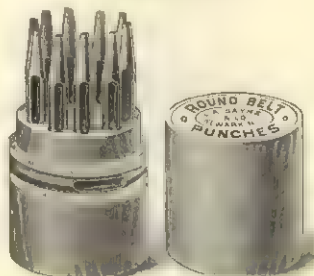


1 2 3 4 5 6 7 8 9 10

Cut shows sizes from 1 to 10, inside diameter.

V. & B.—Belt Punch, Square Shank, Oil Finished,	Nos.	1 to 6	7 to 9	10
	Per Dozen,	\$2.00	2.25	2.50

One Dozen in a box.



Cut shows Punches in wood box.

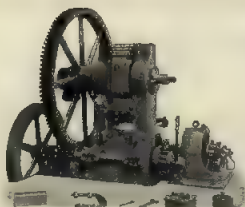


No. 330 Round Belt Punches, Best Tool Steel, Carefully Tempered, in strong round wood box, containing twelve Punches, Assorted Sizes, Nos. 1 to 6, Per Set, \$1.30

Standard Machine Tools

For BRIDGE WORKS
STEEL CAR PLANTS
BOILER SHOPS
SHIP YARDS, Etc.

Hilles & Jones Company,
WILMINGTON, DELAWARE.



GUILLOTINE FRAME BAR SHEAR

This type of shear is made in eight different sizes and, for driving by 100 H.P. steam engine or electric motor. Knives may be made in sections if preferred, so that both flat and radius can be sheared without changing.

This is The Cochrane-Bly Filing Machine



For use in Die Making, Light Slotting, Hack Sawing and other tool room work.

♦ ♦ ♦ ♦ ♦

Files a flat and and perfectly true surface at any angle.

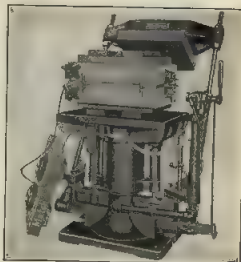
♦ ♦ ♦ ♦ ♦

In use in the largest and best equipped shops in this country.

COCHRANE-BLY MACHINE WORKS

Mrs. of Die Making Machinery,
ROCHESTER, N. Y.

Just a Word



Or two about Molding Machines before you buy one. It's always wise to compare the merits of different makes, for you are the one to whom the weak points of the machine mean the most.

That's one reason we are always pleased to show

Tabor Vibrator Frame Molding Machines

in operation at our works, they have no weak points.

Wherever adopted, they have reduced foundry expenses and the work they do is rapid, high-grade and uniform under all conditions.

Catalog telling more about our machines is sent for the asking.

The Tabor Mfg. Co.

18th and Hamilton Sts.,
Philadelphia, Pa.

Machinery Trust, Ltd., 116 Fleet St., E.C. 4, London; Eng. Division, Hamilton Co., Ltd., Toronto; and J. M. Schwabert & Co., Berlin, Germany; and V. von St. Petersburg.

Our new tailstock



Built in 11", 13" and 16" swings. Beds from 3' to 12' in length. All latest improvements

for speed lathes insures a perfect alignment of head and tail spindles all the time. It has combination wheel and lever feed and an arrangement of wedges to secure exact adjustment. That's why you can do such good work on our lathes — the alignment is so exact.

All the leading dealers sell it and our circular will introduce you to it.

J. G. Blount & Co.,
Everett, Mass., U. S. A.

Crucible Steel Castings

In from five to ten days

Any size or shape
Up to 1,500 lbs.

These castings have every attribute of forged steel, work the same, wear the same. They are made from a secret process steel. Our facilities are such that we can deliver in from five to ten days from receipt of order. These castings come to you without sand seams, hard crusts, or blow holes.

"Our Customer's Story" comes on request and is worth looking over.

Uniform Steel Co.

Newark, N. J.
U. S. A.

IRON CASTINGS.

Large Modern Foundry with capacity sufficient for very prompt delivery of any order.

LARGE WORK A SPECIALTY.

Farrel Foundry & Machine Company, ANSONIA, CONN.

Illustration American Machinist.

SEND FOR OUR GEAR LIST.

Semi-Steel.

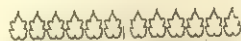
Machine Molded Gears.

CHALLENGE GUN CASE.

INDISPENSABLE TO ALL DEALERS IN GUNS.

WILL SAVE ITS COST IN ONE SEASON.

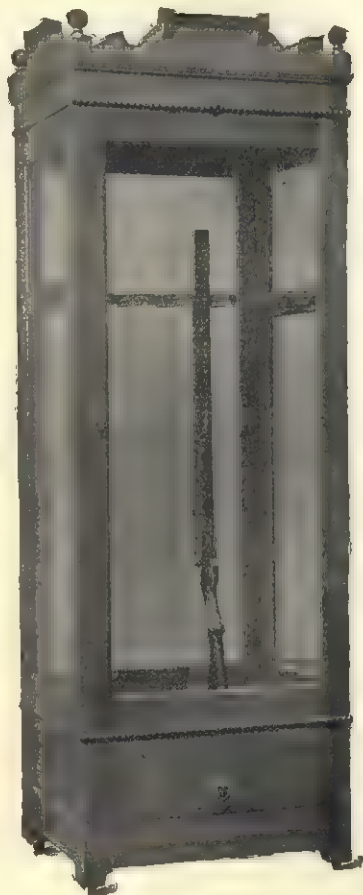
HOLDS TWELVE GUNS OR RIFLES.



*Doors Fitted
on Front and Back,
with Locks.*



*Rolls on Casters
and can easily be
moved about.*



*Can be used to
Display Guns
Outside.*



*Drawer in Base for
Loading and
Cleaning Tools, etc.*



Challenge Gun Case, Solid Oak, Extreme Height, 6 feet 8 inches; Depth, 1 foot 8 inches;

Width, 2 feet 2 inches, ... Each, \$25 00

BOXED READY FOR SHIPMENT.

FIFTH DIVISION, DEPARTMENT OF Guns and Sporting Goods



NOTICE.

We will send Guns on approval at expense and risk of parties ordering. If returned, it must be within three days, and without showing the slightest use.

Guns not like Bore are not guaranteed for close shooting. If close shooting is desired we will Choke at a cost of from \$2.00 per barrel and upwards, according to the pattern required.

Guns are tested and examined before shipment, and none are sent out that are not perfect in every particular.

Misfire often occurs when shells are reprimed, or when an inferior shell is used. In either case we do not hold ourselves responsible.

Guns returned for repairs or other causes, must be packed in a wooden box, or the express companies will charge **triple first-class** rate.

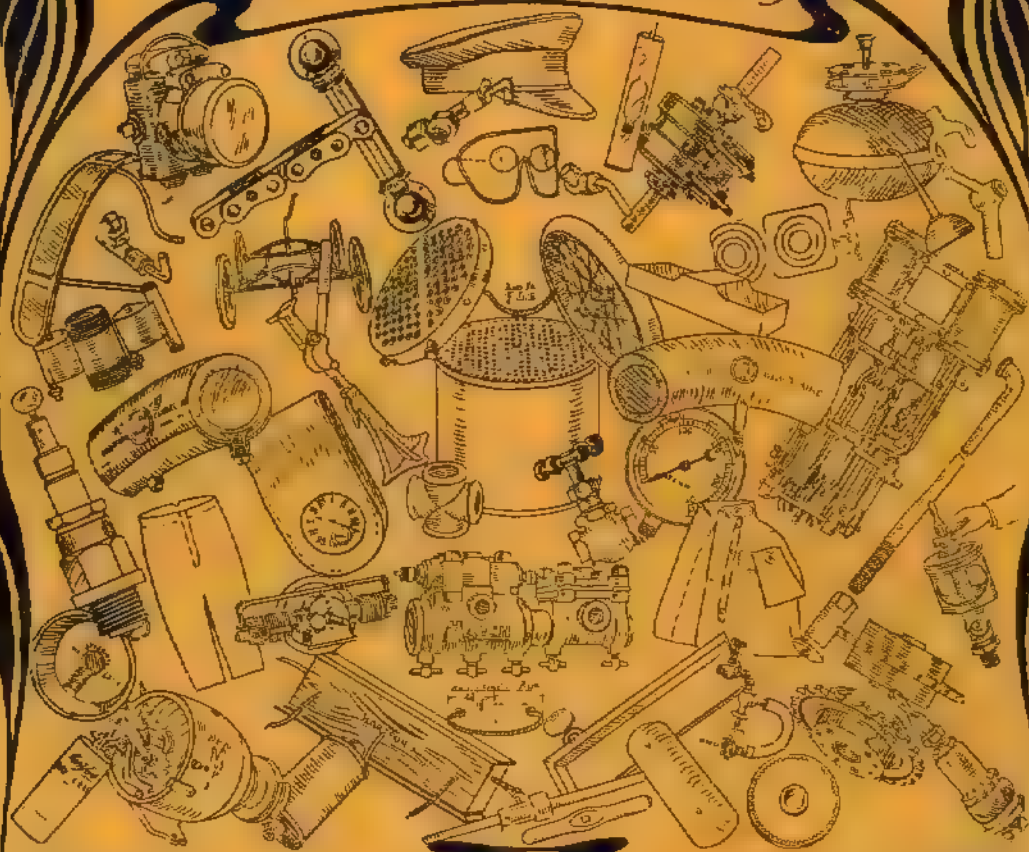
All claims for damage must be made on receipt of goods.

Caps, Primers and Cartridges cannot be sent by mail.

Finished parts for Flobert Rifles, Hand-made Guns or Revolvers cannot be supplied, as the parts for these Arms are not interchangeable. We can supply parts in the rough, but they must be fitted by a gunsmith.

AUTOMOBILE MATERIAL & SUPPLIES

*EVERYTHING FOR MANUFACTURERS, DEALERS,
EXPERIMENTERS & REPAIRERS.*



SEND FOR 1902 CATALOGUE
THE POST & LESTER CO.
HARTFORD, CONN.

MANUFACTURERS, WHOLESALE & EXPORTERS.

Crestmobile



Crest 3 H. P. Vertical Air Cooled
Crest 5 H. P. Duplex Air Cooled
Crest 7 H. P. Vertical Water Cooled

MOTORS

POWERFUL
NOISELESS
DURABLE
COMFORTABLE
SIMPLE

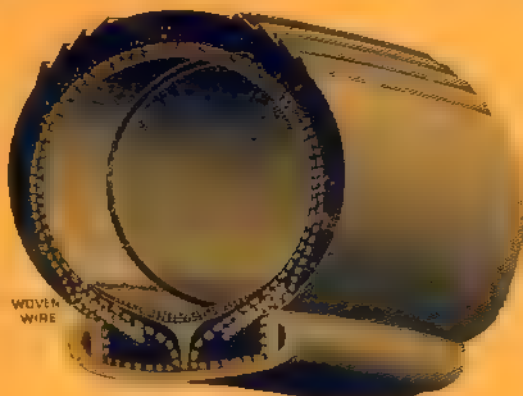
Price, \$550

AGENTS WANTED



MOTOR BICYCLE TIRES

Freedom
from
Punctures



Easily
Repaired
by any
Novice

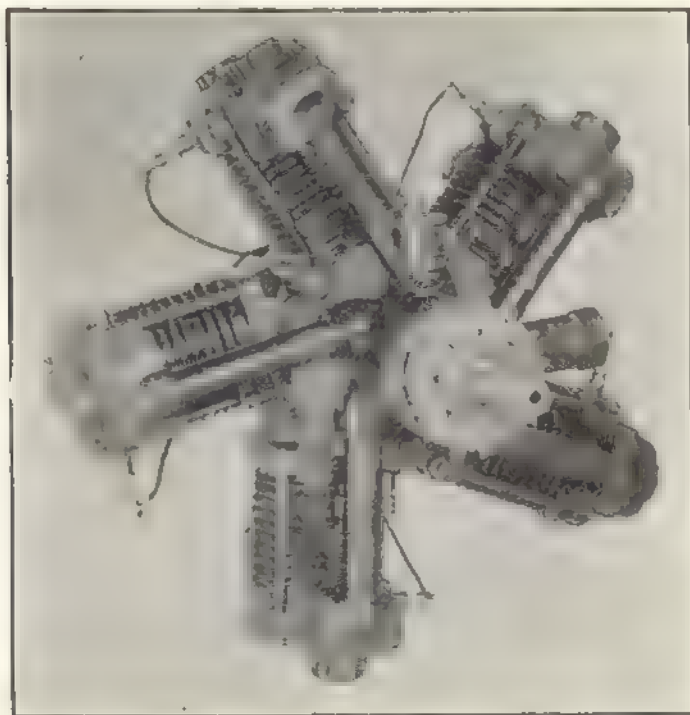
GOODYEAR DETACHABLE
MOTOR CYCLE TIRE

DETACHABLE-DOUBLE TUBE

Used Exclusively by the largest manufacturers of Motor Bicycles in
the United States. Write for Sections and Prices.

The Goodyear Tire and Rubber Co.

AKRON, O., U. S. A.



The De Long 5-Cylinder Engine and Motor

Diameter 25 inches, stroke 26 inches.

The flinged cylinders are cooled by tank

oil. The oil is pumped from the cylinders into the tank and it is so arranged that the oil is constantly being replaced.

THE De LONG MOTOCYCLE



Write for our
free literature
and prices

Catalogues on
application

Notice the
distinction
between
this and
other motorcycles

Industrial
Machine
Co.

PHOENIX,
N. Y.,
U. S. A.

"LIBERTY" CYCLES, TOE CLIPS AND PEDALS.

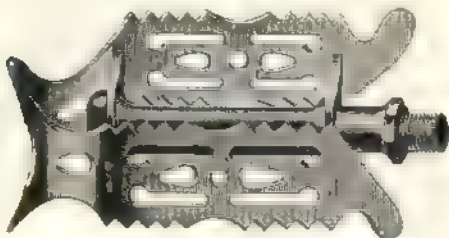
The Liberty Toe Clip, manufactured by Liberty Cycle Co., 166 John street, Bridgeport, Conn., is made of spring steel, coppered and nickered. They sell to dealers



Liberty Toe Clip

at 60 cents per dozen pairs. The Liberty Pedal is of rat trap type and shaft is $\frac{1}{2}$ inch with 20 threads to the inch. It sells to dealers at 50 cents per pair.

The "Liberty" line of bicycles includes four models, all chain machines. The "Special" for men's use has 22 and 24 inch frames, 1 1/2 inch tubes and enameled in black, royal blue or vermillion. Joints are flush. Crown is arched; 3-16 inch chain is used. Option is given on Hartford 77 or Goodyear 999 tires. Rubber Neck saddle and Kelly forward extension or regular handle-bar are provided. It lists at \$40.



"Liberty" Pedal

The "Bozie Man" Racer lists at \$50. Made with 22 or 24-inch frame, arch crown, full nickered forks, enameled black, with rider's egg blue head, Rubber Neck racing saddle, Hartford Special or Palmer tires.

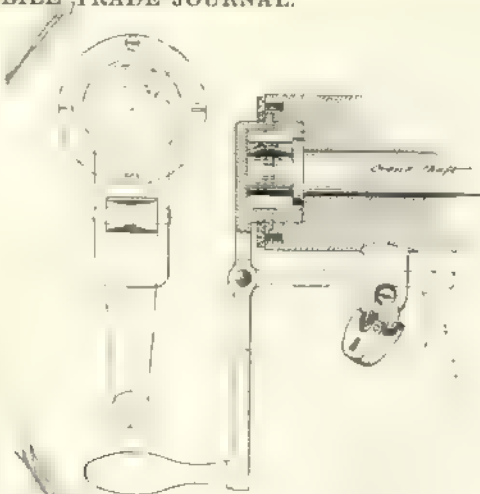
They also put out a \$25 men's road wheel with lap joints, square crown, $\frac{1}{4}$ -inch chain, adjustable handle-bar, Bunker saddle, Guaranteed tires.

A ladies' drop frame model at \$30 completes their line. This is made with 20, 22 or 24-inch frame, aluminum chain guard, black mud guard, Bunker saddle, Hartford 70 or Goodyear 19 tires.

This company markets a complete line of sundries and supplies for the bicycle trade.

KING'S STARTING DEVICE FOR GASOLINE MOTORS.

A new starting device for gasoline motors has been designed by James D. King, 433 De Kalb avenue, Brooklyn, N. Y. It is intended to overcome the possibility of the crank being pulled out of the operator's hand in the event of the engine jerking backward, and



King's Starting Device for Gasoline Motors.

consists of a chamber attached to the crank handle, but set eccentrically with the shaft, which it is intended to rotate in this chamber, and in which is placed a roll, or ball. In the illustration the roll is shown, although it can be equally well designed to employ a ball.

This ball wedges between the inner wall of the chamber and the shaft when the handle is turned to the right. Any backward movement of the shaft will release the crank immediately.

The crank is hinged and arranged to spring up and lock when not in use.

SIDWAY LOW DROP TOE CLIP.

To meet the demand for a toe clip that can be used on a low drop wheel, the Sidway Manufacturing Co., 240 West Lake street, Chicago, Ill., have put out the "Low Drop Toe Clip" which combines this advantage with the excellent features of their well-known "Hill-Climber" Toe Clip. In the Low Drop Clip the toe stop is always raised to prevent striking the ground, and is instantly extended when the rider's foot is inserted in the clip. The upper part is made of a specially prepared leather. List price is \$32 per gross.

The Sidway Co. manufactures an extensive line of bicycle sundries and hardware specialties.

UNBREAKABLE HACK SAWS.

E. T. Harris, 531-545 West Fifteenth street, Chicago, Ill., the well known huf manufacturer, announces that he is now manufacturing a superior line of hack saws for hard, tough or soft metals. These saws are guaranteed to be absolutely unbreakable and they will cut freely and rapidly.

Mr. W. E. Taft, Westboro, Mass., has purchased the plant of the Arriston Bicycle Co., of that city, and will manufacture automobiles designed on plans perfected by him. A company with ample capital is about to be formed.

The Oldsmobile Runabout



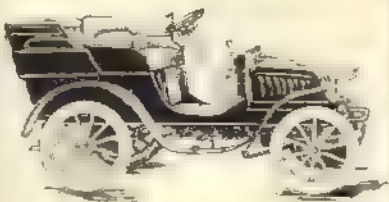
BEAUTY, Strength, Durability combined. Simple in construction. Easily operated. Starts at will from seat. A long trip through the country without fear of a break-down. Fully guaranteed. Write for illustrated catalog.

OLDS MOTOR WORKS

1313 Jefferson Avenue Detroit, Mich.

Kensington Gasoline

LATEST FRENCH DARRACQ MODEL



Run from Paris to Rouen, 150 miles, on $8\frac{1}{2}$ quarts gasoline. Engine 9 horse power. Also

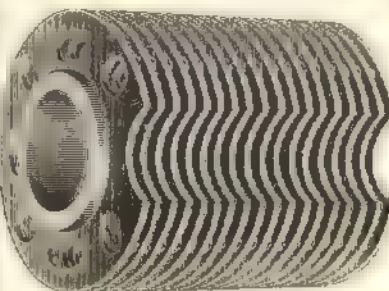
ELECTRIC AND STEAM

Manufacturing by the

Kensington Automobile Mfg. Co.

BUFFALO, N. Y.

Agents Wanted.



Sound - Soft - Strong - Castings

"EQUAL TO FRENCH"

FOR AUTOMOBILES OR
MOTOR CYCLES

Water Jacketed or "Sight Draft" Air
Cooled Cylinders.

We Carry No General Stock

Fine work made to order in any size
or quantity from Patterns or Drawings

PATTERN WORK FOUNDRY WORK MACHINE WORK

The Hopson & Chapin Mfg. Co.

NEW LONDON, CONN., U. S. A.



Everybody likes it

THE ELMORE

is bound to become the leader

Send for Catalog of Model 6.

ELMORE MFG. CO.

CLYDE, O.

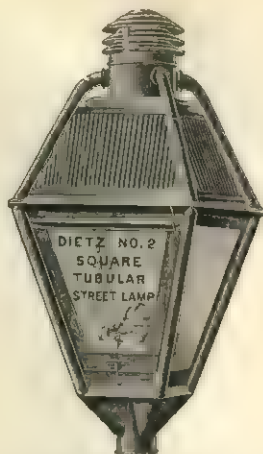
Nos. 354-8 Amanda Street



No. 2, SQUARE TUBULAR LAMP.

No. 2—Dietz Square Improved Tubular Lamps, Japanned Blue. Burns 18 hours, for Kerosene, Height 21½ inches, Width 9½ inches, Depth 10½ inches, No. 3 Burners, 1½-inch Wicks, 8-inch Silvered Glass Reflectors, Burns without a Chimney, Wicks Regulated from the Outside, Each, \$8 50

Packed One in a box, Weight 21 Pounds.



No. 2/S, TUBULAR STREET LAMP.

No. 2/S—Square Tubular Street Lamp, for Kerosene (Coal Oil). Height 36 inches, 16½ inches Square. No. 3 Burner, 1½ inch Wick, 3-inch Flame, Burns a Brilliant Flame without a Chimney, Automatic Extinguisher, Pount Holds Sufficient Oil for 24 Hours, Painted Green, Each, \$8 00

Packed One in a case, Weight 35 Pounds.



No. 3/S, STREET LAMP.

PATENT GLOBE LIFTER, OUTSIDE WICK REGULATOR, CAN BE REGULATED TO BURN A CERTAIN NUMBER OF HOURS.

No. 3/S—Globe Tubular Street Lamps, for Kerosene (Coal Oil). Height 27 inches, No. 3 Burners and Globes, 1½-inch Wicks, Painted Green, Holds Sufficient Oil to Burn 20 Hours, Each, \$6 00

Packed One in a case, Weight 26 Pounds.



No. 3/H, HANGING LAMP.

CAN BE REGULATED TO BURN A CERTAIN NUMBER OF HOURS. LIGHT EQUAL TO 22½ CANDLE POWER.

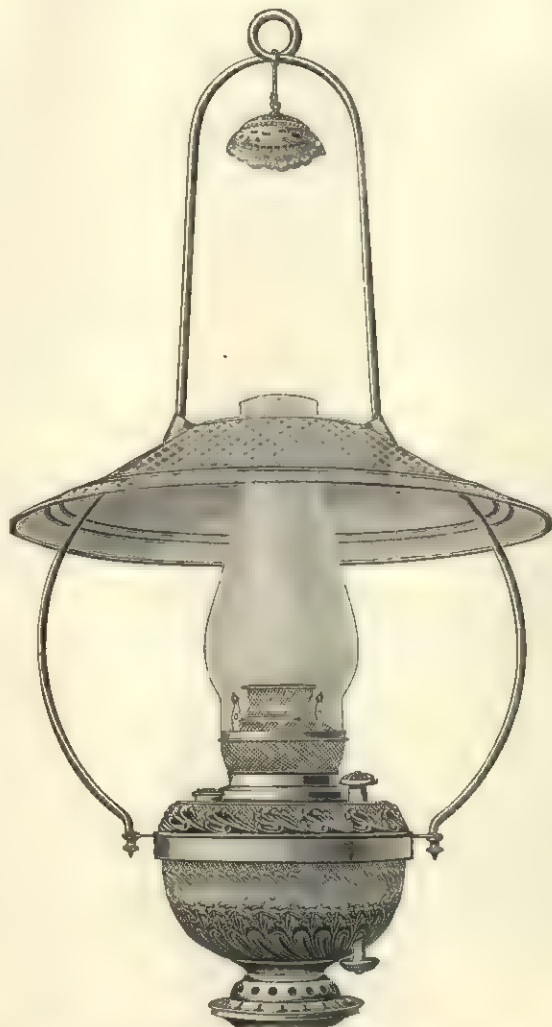
No. 3 H—Globe Tubular Hanging Lamps, for Kerosene (Coal Oil). Height 22 inches, No. 3 Burners and Globes, 1½-inch Wicks, Automatic Extinguishers, Painted Green, Each, \$6 00

Packed One in a case, Weight 25 Pounds.

Can be filled, lighted, regulated and extinguished without removing Globe. Not affected by the strongest wind.

For Globes, see page 1141.

HANGING LAMPS.



No. 01730, PARKER LAMP.

No. 01730—Parker's Hanging Lamps, Length 27 inches. Complete with No. 3 Parker Burners, Embossed Brass, Highly Finished, Patent Lock Ring Harps, 20-inch Tin Shades, Bright Tin on the Under Side and Painted Green on Top, Smoke Belts and No. 3 Rochester Chimneys and Wicks, ... Each, \$5 50

Packed Complete One in a box, Weight 35 Pounds.

For Chimneys and Wicks, see pages 1140 and 1141.

IRON FIRE DOGS.



CAST IRON, LOOSE LEGS.

RING PATTERN.

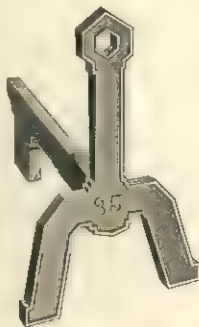
- No. 1—Bright, Height 15 inches, Length of Leg 14 inches, Per Pair, \$1 30
 No. 2—Japanned, Height 15 inches, Length of Leg 14 inches, Per Pair, 1 40
 No. 3—Kahala Bronzed, Height 15 inches, Length of Leg 14 inches, Per Pair, 1 70

Average Weight Per Pair 15 Pounds.

DOG PATTERN

- No. 4—Bright, Height 14 inches, Length of Leg 12 inches, Per Pair, \$1 00
 No. 5—Japanned, Height 14 inches, Length of Leg 12 inches, Per Pair, 1 30
 No. 6—Kahala Bronzed, Height 14 inches, Length of Leg 12 inches, Per Pair, 1 40

Average Weight Per Pair 13 Pounds.



COMMON.

CAST IN ONE PIECE, SMOOTH AND BRIGHT AND FREE FROM SAND.

- No. 16—Weight Per Pair 16 lbs.,
 Length of Leg 11 inches, Per Pound, \$

- No. 20—Weight Per Pair 20 lbs.,
 Length of Leg 11½ inches, Per Pound, \$
 No. 25—Weight Per Pair 25 lbs.,
 Length of Leg 12 inches, Per Pound,

- No. 30—Weight Per Pair 30 lbs.,
 Length of Leg 12¼ inches, Per Pound, \$
 No. 35—Weight Per Pair 35 lbs.,
 Length of Leg 13 inches, Per Pound,

FIRE SETS.



No. 2, FIRE SET

No. 2 Fire Sets, Height 17 inches, Green and Gold Bronzed, with Shovels, Pokers and Shear Tongs, ... Per Set, \$1 75



No. 16, FIRE SET.

No. 16 Fire Sets, Height 23 inches, Enameled, with Shovels, Tongs and Pokers, Per Set, \$3 35

Packed One-half Dozen in a case.



No. 238, FIRE SET.

No. 238 Fire Sets, Height 26 inches, English Bronzed Stands, with Shovels, Tongs and Pokers to Match,

Per Set, \$8 75



No. 138, FIRE SET.

No. 138—Fire Sets, Height 26 inches, English Bronzed Stands, with Shovels, Tongs and Pokers, Brass Plated,

Per Set, \$8 25



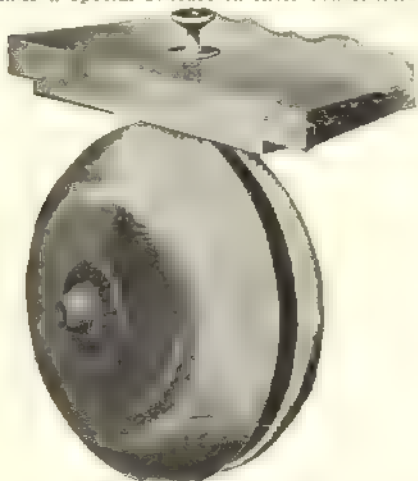
No. 1, ALASKA FIRE SET.

No. 1—Alaska Fire Sets, Nicked Finish, Height 18 inches, with Shovels, Tongs, Pokers and Cover Lifters,

Per Set, \$4 00

EAST HAMPTON BELLS.

The East Hampton Bell Co., East Hampton, Conn., manufacture automobile bells, which are famous for their clear musical tone. No inferior material is used in their manufacture, but durability has been made a special feature in their construction.



East Hampton Auto. Bell.

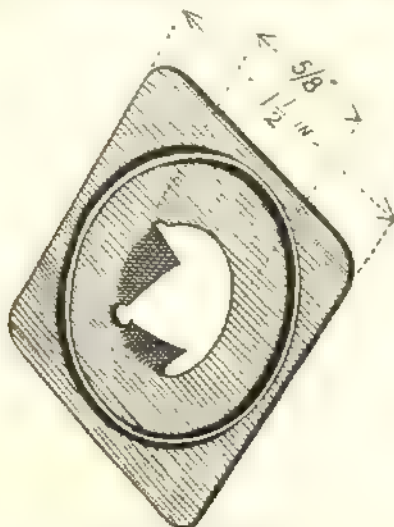
The very best metal is used and the parts put together accurately and carefully, insuring satisfaction and long service.

These bells are finished rough, polished or nickel plated. The manufacturers will send samples and quote prices on request.

WALTER'S RADIATING DISK.

N. C. Walter & Sons, 194 William street, New York city, are manufacturing a disk for use on radiating coils on gasoline vehicles which, while extremely simple in construction, has proved very efficient in practical use.

The illustration given is from a photograph of a single disk. About 600 of these



Walter's Radiating Disk.

disks are used on a coil. After being slipped over the pipe, one on top of the other, they are galvanized to the pipe so that they form practically an integral part of the coil and serve to carry off the heat very effectively.

Each disk is stamped from a single piece of sheet metal possessing great radiating properties. The little flanges protruding from the centre are formed by cutting the middle of the disk diagonally and bending the four triangular pieces thus formed outward at right angles with the disk proper.

These disks are in use by many of the largest manufacturers and are giving good results.

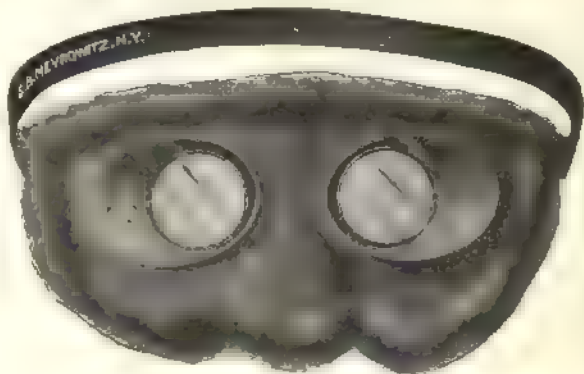
MEYROWITZ'S NEW STYLES GOGGLES.

A number of improvements have recently been made in automobile goggles. One of the latest models is called the Fournier, named after the famous chauffeur. It consists of a flexible metal plate lined with chamois, and can be shaped to fit the contour of the face. In this plate are placed two ventilated aluminum cone-shaped cups, in which either smoked or white lenses are inserted. The cups are so constructed as to give a wide range of vision and the whole device is held to the head by an elastic band.

This goggle is being marketed by E. B. Meyrowitz, 104 East Twenty-third street, New York city. As he has a store in Paris he keeps closely in touch with French innovations in the goggle line.

To those desiring something warmer than the Fournier he offers another style of mask, made with gray chamois or black patent leather, covering and securely protecting the face and nose from cold, wind or dust. These have the same cone-shaped cups as the Fournier, in which lenses to suit the wearer's vision can be placed.

He has still another style in gray chamois the same as the preceding, for ladies' use, lined with otter fur, soft and extra warm.



The Fournier Automobile Goggles

New styles in waterproof cloth, kid and chamois are constantly being added.

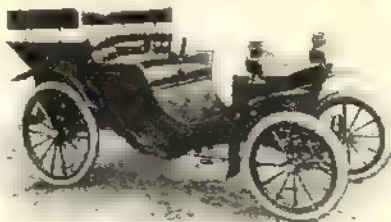
The People's Automobile Co., 1883 Broadway, Cleveland, O., is in the hands of a receiver.



IF IT'S A DURVEA IT'S RIGHT



For the past five years DURVEA vehicles have been the only ones that Americans have ever seen. The DURVEA 9 have tried the experiments. When you buy a DURVEA you are getting



a standard product, a machine, and not a machine—a permanent design and one that will be a back-bone before the year is over. Experience counts. DURVEA needs



DURVEA POWER CO., Hockley St., READING, PA.



TOURING CARS

New Style
Combination

Carries Two or Four Passengers

Air Pump

No Torch

Pilot Light

No Experiment

RELIABILITY GUARANTEED

Desirable Agents Wanted

Write for Proposition to

PRESCOTT AUTOMOBILE MFG. CO.

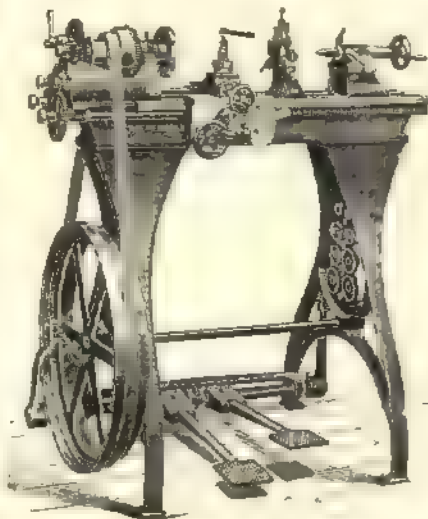
83 Chambers St., New York

Factory, Passaic, N. J.

Weight, 1050 lbs.
Fuel Capacity, 10 Gallons
Water Capacity, 30 Gallons

"Reliable" Screw-Cutting Engine Lathes

Made in Two Sizes, either for Power or Foot Power



Swing, 14 inches with 25 or 36 inches between centers. Has ratchet and screw feed; also power cross feed rise and fall tool post. Can cut on with cross feed at 1/4 inch per foot is the most complete lathe of its size built.

SPECIAL OFFER—10 x 25-inch Lathe with 5-inch Universal Chuck, with Reversible Jaws and Drill Chuck, both fitted and a set of ten Lathe Tools \$100.00

A 10 x 36-inch with the same equipments 107.50

Propositions for instant plan will be considered when lathes are to be shipped within 50 miles of New York City.

MANUFACTURED BY

PETER A. FRASSE & CO.

94 Fulton St., New York City

Eastern Distributing Agents for

The Shelby Steel Tube Co.

We carry in stock 1 1/2 inch to 12 inch diameters, 20 to 25 ft. long.

Send for 1908 Price List of Bicycle and Automobile Parts and Fittings

TRADE



MARK

Thornton Electric Works

MANUFACTURERS
DRY BATTERIES
FOR THE TRADE

ELECTRIC LAMPS AND NOVELTIES
MEDICAL COILOUTFITS, ETC., ETC

Office : 3 E. 14th St.
NEW YORK

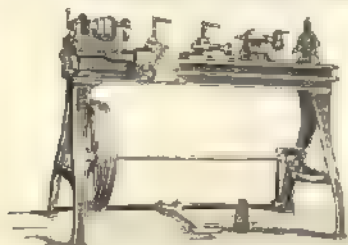


CYCLE SKATES

As Buyers Jobbers, we ask you to write for our 1902 catalogue and prices. They all say "We can save you money," But? Try us. We can.

CHAS. F. SCHUETZE CO.
1206 Washington St., Manitowoc, Wis.

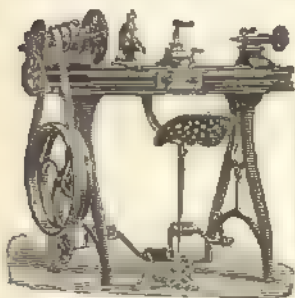
10 INCH SCREW CUTTING LATHE



I'm good. I am a student here. I am also
a member of the school choir. I like singing.
I will see you next time.

E. E. JOHNSON

54 Hermon Street, Worcester, Mass.



For Bicycle
Repairing

W. F. & Jno.
BARNES CO.
104 Ruby Street
ROCKFORD, ILL.

GASOLINE BURNERS

**Sprocket Wheels Sheet Steel
Stampings and Automobile Parts.**



Peter Forg, Somerville, Mass.

FRONT HUBS



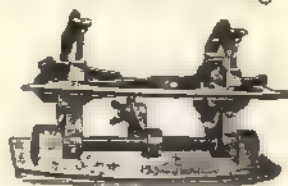
TOOL STEEL CONES. FELT WASHERS. MADE FROM SOLID BAR. WITH OILER.

Built for BEST Trade at Right Prices.
Centland Corporation, Cent. 1, 2

Cortland Carriage Goods Co.
CORTLAND, N. Y.

CHAS. E. MILLER, Metropolitan Representative

Perfection Skate Grinding Holder



PRICE, \$3.00

For grinding any kind of skate on any kind of
Emery Wheel.

Mr. J. L. O. Dora is there and will be
 representative of A. A. McCall, New Haven
 Conn. Representing America in New England states.

JOS. H. FERDOWILL & CO.
ST. PAUL, MINN.

"STAR" FOOT AND POWER LATHES



9 to 13

Inch

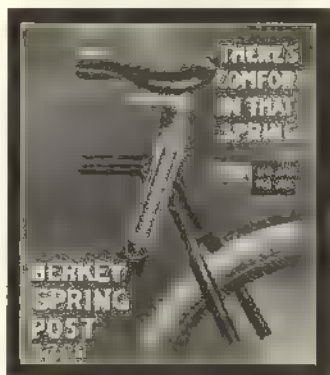
54.104

High Grade Screw Cutting
Engine Lathes, with auto. c.
cross feed, 10 H. T. ras. B. I.
Bearings, with clander, in
of compound steel, standard.
We work of Max. lead screws.
Ask for a list of for a
plans. Leave a message.

Send for Catalogue B
The SENECA FALLS MFG. CO.

416 Water St. Seneca Falls, N. Y., U. S. A.

For **PERFECT EASE** and **COMFORT**
THE BERKEY BALL BEARING SPRING POST
HAS NO EQUAL



It positively absorbs all jar and jolt, makes riding over rough roads or pavements seem like mecadam, practically converting any new or old bicycle into one having all the comforts of the Cushion Frame, at a price the rider is willing to pay

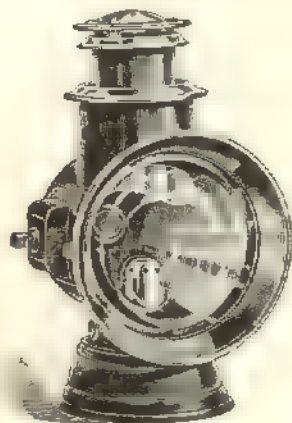
Indispensable to riders of Coaster Brakes or Motor Cycles, in fact, the only Spring Post made having Ball Bearing and Cone adjustment. Different size springs for all weights of riders

WITH OR WITHOUT INTERNAL EXPANDER

Catalogued by Leading Jobbers Everywhere. 1903 booklet free for your address.

Berkey Spring Seat Post Company
GRAND RAPIDS, MICHIGAN

THE DIETZ LAMP



is a popular pattern and universally copied. While the design may be imitated, it is not always possible for manufacturers to keep up to the Dietz standard of construction.

It is for this reason that our lamps are deservedly recognized as being the most reliable automobile headlights in the world. The fact that they have been adopted by the lead-

ing manufacturers of motor vehicles is proof of their sterling worth.

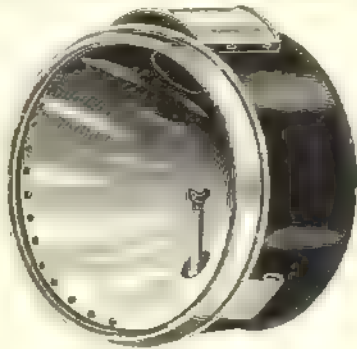
Printed matter and prices may be had on application to

R. E. DIETZ & CO., 35 LAIGHT ST., N. Y. CITY

THE STANDARD INDEPENDENT ACETYLENE GENERATOR AND LAMP.

The Standard Lamp Co., Chicago, Ill., is offering a variety of acetylene gas and electric lamps at attractive prices.

The New Acetylene Headlight is entirely enclosed, having a hard body and a glass



New Acetylene Headlight

front, and is protected from any atmospheric disturbances. It has a perfect parabolic reflector so focused that its power of light is said to be greater than the sun. With their bracket socket it can be readily placed in front of the vehicle. Finished in nickel and japan, brass and japan or full brass. The No. 1 is 7 inches in diameter, $3\frac{1}{2}$ inches deep and weighs 23 pounds. It lists at \$8. Nos. 2 and 3 are larger and list at \$11 and \$14 respectively.

This lamp is attached to the independent acetylene generator. See illustration in view. For complete information, see the illustration on the inside of the



Standard Acetylene Independent Generator

vehicle where desired. The gas is conducted through a flexible tube to the tip. All parts are nicely nickel plated and easy to clean. The calcium carbide and water system is self controlling and gives no trouble whatever. Their cool generating system makes a fine quality gas, which produces a white strong light and does not carbonize the burner.

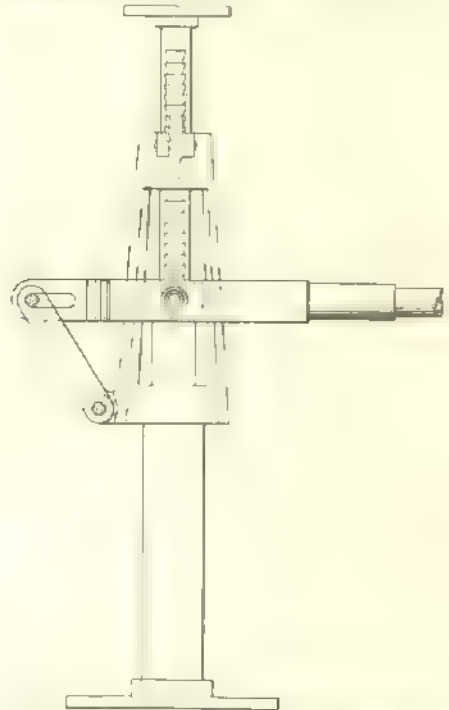
This generator is also made round instead of oval shape at a lower price. The one shown herewith lists at \$16 for single generator, 6x6x3x8 inches. The double generator for two or four lights measures 8x4x6x1x8 inches and lists at \$30.

It is stated that the DeDion-Bouton Co., Paris, France, have produced a 40 H. P. motor weighing only 100 pounds.

SCHMIDT & MUELLER'S COMBINATION AIR PUMP AND LIFTING JACK.

In our issue of August last we mentioned that Schmidt & Mueller were working on a combination air pump and lifting jack. As such a useful device cannot help but meet with great favor, the trade will no doubt have with delight the introduction of Schmidt & Mueller's new invention.

The pump or jack can be used either singly or together. In case of puncture the vehicle can be jacked up in short order and after



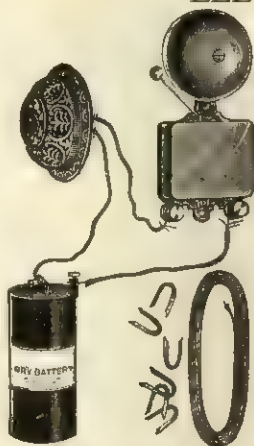
Schmidt & Mueller's Combination Air Pump and Lifting Jack

repair is made the tire can be pumped up while the vehicle is still raised. In this way there is no dead weight to be raised in pumping up the tire.

The construction of this combination tool is such that it takes up no more room than an ordinary pump, and can therefore be carried in the vehicle without inconvenience, and can be made at practically the cost of an ordinary pump. The introduction of this combination air pump and lifting jack will no doubt make all ordinary old style pumps and jacks superfluous, at least as far as the automobile trade is concerned. As the inventors are not in a position to manufacture them on a scale large enough to meet the demands of the trade after they are once introduced, they invite correspondence with a view to buying the patent right outright, or to manufacture them on a royalty basis.

The Prescott Automobile Co., Passaic, N. J., recently shipped to England the first consignment on an order for 200 of its steam vehicles.

ELECTRIC BELL SETS

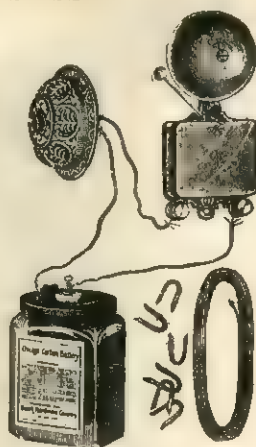


Nos. 20 AND 20/OC.

SUITABLE FOR DOOR BELLS AND GENERAL USE.

- No. 20—Electric Bell Sets,** One 3-inch Electric Bell, One Bronze Push Button, One Dry Battery, 75 feet Insulated Wire, Staples sufficient to put up, ... Per Set, \$4 00
- No. 20/OC—Electric Bell Sets, Old Copper Finish,** Otherwise Same as No. 20, Per Set, 4 50

Packed One Set in a neat paper box.



Nos. 30 AND 30/OC.

SUITABLE FOR DOOR BELLS.

- No 30 Electric Bell Sets,** One 3-inch Electric Bell, One Carbon Battery, One Bronze Push Button, 75 feet Insulated Wire, Staples sufficient to put up, ... Per Set, \$4 00
- No. 30/OC—Electric Bell Sets, Old Copper Finish,** Otherwise Same as No. 30, Per Set, 4 50

Packed One Set in a wood box.

These Electric Door Bells can be put up by anyone. The above illustrations show exactly how the different connections are to be made. Each box contains full directions for putting up Bell.

EXTRA BATTERIES.

DRY BATTERY.

- No. 10—Meaco Dry Battery** Each, \$1 00

WET BATTERY.

- No. 20—Western Giant, Leclanche Pattern,** Each, \$1 50

BELL WIRE.

- No. 18—Insulated Bell Wire,** No. 18 Gauge, 148 feet to Pound, Colors in Red, Blue, Green and White, . . . Per Pound, \$1 00

HOUSE BELLS ON CARRIAGES.

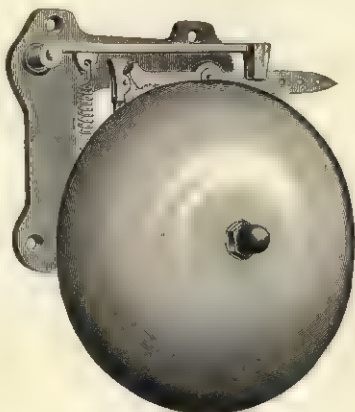


No. 18, HOUSE BELL.

- No. 18 House Bells,** No. 2 Polished Brass Bells, Complete with all Trimmings, ... Per Dozen Sets, \$8 00
- No. 23—House Bells,** No. 2 Polished Brass Bells and Spikes Only, ... Per Dozen Sets, 4 00

Packed One-half Dozen Sets in a box.

GONG BELLS.



No. 1, GONG BELL.

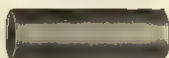
POLISHED BELL METAL; 4 TO 8 INCH METAL HEADS, 10 TO 20 INCH WOOD HEADS.

No. 1—Gong Bells,	Each,	4	5	6	7	8	10	12	14	16	18	20
		\$1.20	1.90	2.25	2.75	3.50	5.50	9.25	15.00	23.00	28.00	33.00

Packed One in a package

SPEAKING TUBES AND ELBOWS

ALARM WHISTLES.



SPEAKING TUBE.

Speaking Tube Diameter 1
inch, . . . Per 100 Feet, \$8 00
Five-Foot Lengths.



SPEAKING TUBE ELBOW.

Speaking Tube Elbows—Di-
ameter 1 inch, . . . Each \$0 10



No. 158

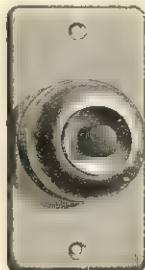
No. 158—Alarm Whistles,
with Indicator, Porcelain
Mouth-piece, Per Dozen, \$5 00
Packed One Dozen in a box.

ELECTRIC PUSH BUTTONS.



No. 62

No. 62—Electric Push Buttons, Cast Metal, Real
Bronze, 2 1/4-inch, Fibre Backs and Pushes,
No. 11 Finish, . . . Per Dozen, \$3 90



No. 65.

No. 65—Electric Push Buttons, 4 1/4 x 2 1/4 inches
Round Edge, Cast Metal, Real Bronze, No.
11 Finish, Fibre Backs and Pushes,
Per Dozen, \$7 80

Packed One-half Dozen in a box, with Screws.

SPLIT BAMBOO RODS.



No. 190—Bass Rods, Extra Fine Quality Split Bamboo, 3 joints and extra tip, made of 6 strips selected Calcutta Bamboo, firmly cemented and rounded. Wound at close intervals with two colors of silk. Fine German silver mountings, welded ferrules, solid metal reel plate, silk wound antifriction guides, cork grip, length about 10 ft. Finely finished and put up in a velvet covered wood form, . . . Per Dozen, \$160 00



No. 191—Fly Rods, Extra Fine Quality Bamboo, 3 joints and extra tip, made of 6 strips selected Calcutta Bamboo, firmly cemented and rounded. Wound at close intervals with two colors of silk. Fine German silver mountings, welded ferrules; solid metal reel plate below the hand, silk wound rings and keepers, cork grip, length about 10 feet. Finely finished and put up in a velvet covered wood form, . . . Per Dozen, \$160 00



No. 200—Trunk Bass Rods, Split Calcutta Bamboo, 4 joints and extra tip, wound at intervals with red and green silk, full nickel-plated mountings, solid metal reel plate, improved ferrules, silk wound the guides, funnel top, cork grip, length 8½ feet. Put up in flannel covered wood form in cloth bag, . . . Per Dozen, \$24 00



No. 201—Valise Bass Rods, Fine Lancewood, 7 joints and extra stout tip, made from best selected Cuban Lancewood, wound at intervals with red and green silk, length 8½ feet, when using stout tip 7¼ feet, cane wound grip, full nickel-plated mountings, solid metal reel plate, improved welded ferrules, silk wound the guides, finely finished and put up in cloth partition bag, . . . Per Dozen, \$55 00



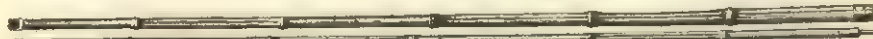
No. 203, FLY ROD.

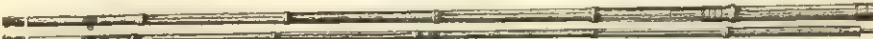
No. 202—Trunk Bass Rods, Split Calcutta Bamboo, 5 joints and extra tip, wound at close intervals with two colors of silk, full nickel mountings, solid metal reel plate, welded ferrules, silk wound the guides, cork grip. Finely varnished and put up in cloth partition bag, Per Dozen, \$80 00

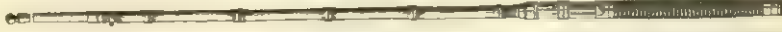
No. 208—Trunk Fly Rods, Split Calcutta Bamboo, 5 joints and extra tip, wound at close intervals with two colors silk, full nickel mountings, solid metal reel plate below the hand, welded ferrules, silk wound the guides, cork grip. Finely varnished, put up in cloth partition bag, . . . Per Dozen, \$80 00

JOINTED JAPANESE BAMBOO RODS.


No. 143—2-Piece, extra quality, Japanese Bamboo, double ferrule with rings, about 10½ feet, . . . Per Dozen, \$3 00


No. 144—3-Piece, Japanese Bamboo, double ferrule, 10 to 12 feet, . . . Per Dozen, \$5 50
No. 145—3-Piece, extra quality, Japanese Bamboo, double ferrule with butt cap, 10 to 12 feet, . . . 7 00
No. 146—3-Piece, extra quality, Japanese Bamboo, double ferrule with butt cap, 12 to 14 feet, . . . 8 50
heavy,


No. 147—3-Piece, extra quality, Japanese Bamboo, double ferrule, brass butt cap, rings and reel bands, about 12 feet, . . . Per Dozen, \$12 00


No. 150—3-Piece, Japanese Bass Rods, full nickel mounted, solid metal reel seat, silk wound tie guides, black enameled scored butt, 8 to 9 feet, . . . Per Dozen, \$17 00
No. 151—3-Piece, Japanese Bass Rods, full nickel mounted, improved shouldered ferrules, solid metal reel seat, silk wound tie guides, Zylonite grip, extra Lancewood tip, 8½ to 9½ feet. Put up in cloth partition bag, . . . Per Dozen, 26 00

JOINTED CALCUTTA BAMBOO RODS.


No. 152—3-Piece, Calcutta Bamboo, brass double ferrule, 9 to 10½ feet, . . . Per Dozen, \$ 6 50
No. 153—3-Piece, Calcutta Bamboo, brass double ferrule, guides, butt caps, 10½ to 12 feet, . . . 11 00
No. 154—3-Piece, Calcutta Bamboo, brass double ferrule, guides, butt cap, reel bands, 10 to 11 feet, . . . 16 00




No. 155—4-Piece, brass double ferrules, guides, capped butt, 12 feet, . . . Per Dozen, \$14 00
No. 156—4-Piece, brass double ferrules, guides, capped butt, 16 feet, . . . 17 00
No. 157—4-Piece, brass double ferrules, guides, capped butt, reel bands, 16 feet, . . . 20 00


No. 159—3-Piece, Bass Rods, Calcutta Bamboo, full nickel mountings, patent reel seat above hand, silk wound, extra Lancewood tip, silk wound standing guides, 9½ to 10 feet, in cloth partition bag, . . . Per Dozen, \$35 00

SPRING BALANCES.



LIGHT SPRING BALANCE.

No. 10—Weights 25 lbs. by $\frac{1}{2}$ lb.,	Per Dozen, \$1 50
Packed One Dozen in a box.	
No. 11—Weights 25 lbs. by $\frac{1}{2}$ lb.,	Per Dozen, 1 60
Packed One Dozen in a box.	
No. 12—Weights 50 lbs. by 1 lb.,	Per Dozen, 3 00
Packed One-half Dozen in a box.	



STRAIGHT SPRING BALANCE.

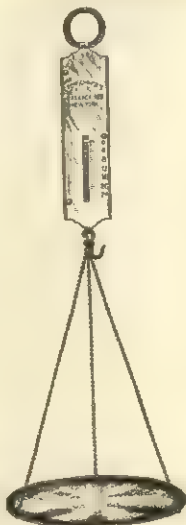
No. 16—Weights 24 lbs. by $\frac{1}{2}$ lb., Heavy,	Per Dozen, \$4 00
Packed One-half Dozen in a box.	
No. 19—Weights 50 lbs. by 1 lb., Heavy,	Per Dozen, 8 00
Packed One-quarter Dozen in a box.	



ROUND SPRING BALANCE.

No. 25—Weights 24 lbs. by $\frac{1}{2}$ lb.,	Per Dozen, \$4 00
Packed One-half Dozen in a box.	

SPRING BALANCES WITH PANS.



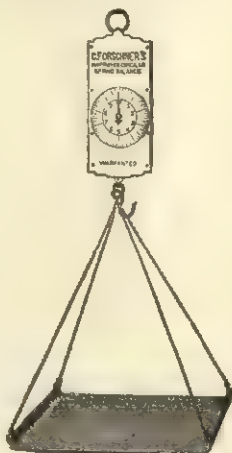
No. 13.

- No. 13**—Light Balance, Weighs 25 lbs. by $\frac{1}{4}$ lb., with Round Pan, Per Dozen, \$4 00
No. 14—Light Balance, Weighs 50 lbs. by 1 lb., with Round Pan, Per Dozen, 6 00
 Packed One-half Dozen in a box.



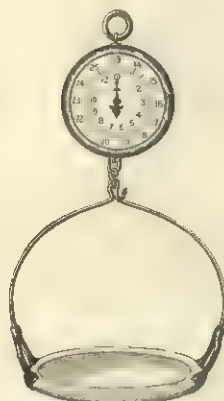
No. 32.

- No. 32**—Straight Balance, Weighs 24 lbs. by $\frac{1}{4}$ lb., with Round Pan, Per Dozen, \$7 00
No. 33—Straight Balance, Weighs 50 lbs. by 1 lb., with Round Pan, Per Dozen, 8 50
 Packed One-half Dozen in a box.



NOS. 77 AND 78.
 WITH BRASS FRONTS.

- No. 77**—Circular Balance, Weighs 30 lbs. by 1 oz., with Square Pan, Per Dozen, \$8 25
No. 78 Circular Balance, Weighs 60 lbs by 2 oz., with Square Pan, Per Dozen, 7 50
 Packed One in a box.



No. 1, CHAMPION.

- No. 1**—Champion, Weighs 25 lbs. by ounces, Brass Dial, Nickel Rim, Large Black Figures, Round Steel Pan, Each, \$4 00
 Packed One in a box, Weight 4 Pounds.

**JUST
OFF
THE
PRESS**

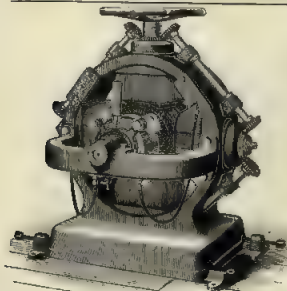
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Multi-Speed Electric Motors

are of MULTI-POLAR form, from 6 H. P. up. We call them *Multi-Speed* because they furnish every imaginable speed between the highest and lowest points; in other words, an unbroken range is given between these extremes. They will carry their full load at all speeds within their range without sparking, with an efficiency practically as high at one speed as another. They also have a wide variation. These results are arrived at without use of rheostats or controllers. If interested please write us for further details.

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The Whitcomb Patent Cross-Head Clamp, besides actually saving considerable money to the owner of a Whitcomb Planer every year, saves the strength and energy of the man who operates the machine. One motion of a lever right at his hand saves the operator many more difficult motions of a wrench and many steps as well. This is one of the many reasons why Whitcomb Planers are so popular among the men in the shop.



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**Punching and Shearing Machines, Eye Bending
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We make name plates for some of the largest machine tools in the U. S. and we would be pleased to send you sample and quote price.
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113 Boylston Street, Boston, Mass., U. S. A.

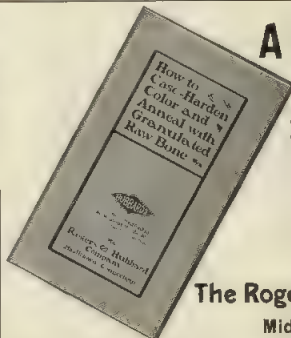
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which goes into the subject of case hardening, annealing and coloring very thoroughly.

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The "American Machinist" says: "No one can afford to be without the book."

It is sent free on request.



The Rogers & Hubbard Co.

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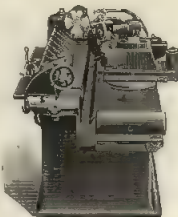
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INK STANDS.



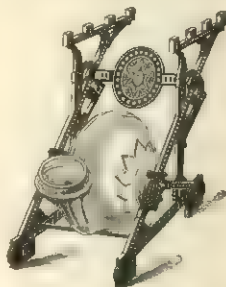
No. 62.

No. 62—Improved Gem, Enameled with Hinged Cover, Glass Ink Well, Per Dozen, \$1 75
Packed One-half Dozen in a paper box.



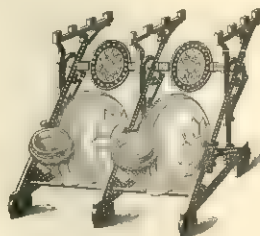
No. 21.

No. 21—Egyptian Bronzed, with Plain "Star" Bottle, Per Dozen, 5 50
Packed One-twelfth Dozen in a paper box.



No. 270.

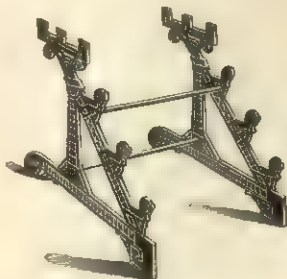
No. 270—Enameled, Revolving "Star" Bottle, Heavy Flint Glass, Per Dozen, \$4 50
Packed One-quarter Dozen in a paper box.



No. 280.

No. 280—Enameled, Two Revolving "Star" Bottles, Heavy Flint Glass, Per Dozen, \$8 75
Packed One-sixth Dozen in a paper box.

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No. 34.

No. 34—Verde Antique, Eastlake Pattern, Per Dozen, \$3 85
Packed One-half Dozen in a paper box.



No. 44.

No. 44—Verde Antique, Eastlake Pattern, Per Dozen, \$3 00
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WILLIAM STILES,
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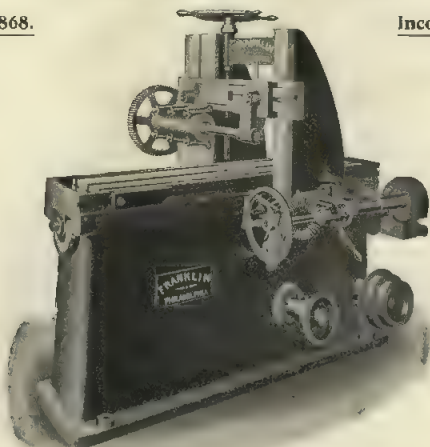
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Philadelphia, Pa.

Established, 1868.

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No. 3 "Franklin" Plain Slab Milling Machine.

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Cold^d Saw Cutting Off Machines,
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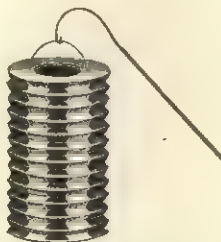
LANTERNS.



IMPORTED JAPANESE LANTERNS.

BRIGHT AND RICH COLORS.

	Per Doz
No. 1—8 inch, round shape,	\$ 1 05
No. 2—10 inch, round shape,	1 50
No. 3—8 inch, egg shape,	1 20
No. 4—10 inch, egg shape,	1 80
No. 5—12 inch, round shape,	2 10
No. A-25—Assorted fancy shapes, per case of 25,	8 25

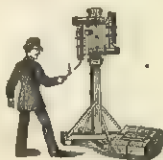


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ASSORTED COLORS, FOR PARADES AND GENERAL DECORATIVE PURPOSES.

	Per 100.
No. 4—7½ inch diameter, bucket shape,	\$ 4 05
No. 5—9 inch diameter, bucket shape,	6 00
No. B—9 inch diameter, globe shape,	10 00
No. C—11 inch diameter, globe shape,	18 00

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We Handle a Full Line of Fireworks.

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PRINTED MUSLIN, MOUNTED ON STICKS; FULL NUMBER OF STARS; BEST QUALITY, FAST AND BRIGHT OIL COLORS, WILL STAND RAIN.

No.	Per Gross.
1 - Size 2x3 inches, ...	\$ 0 27
2 - Size 2 1/2 x 4 inches, ...	32
3 - Size 3 1/2 x 6 inches, ...	53
4 - Size 4 1/2 x 7 1/2 inches, ...	72
5 - Size 6 x 9 1/2 inches, ...	1 32
5 1/2 - Size 7 x 10 1/2 inches, ...	1 70
6 - Size 8 x 14 inches, ...	2 56
7 - Size 11 x 18 inches, ...	3 90
7 1/2 - Size 12 x 22 inches, ...	5 00
8 A - Size 14 x 24 inches, ...	5 70
8 - Size 18 x 27 1/2 inches, ...	8 00
9 - Size 20 x 36 inches, ...	13 80
10 - Size 27 x 43 inches, ...	20 00
11 - Size 30 x 50 inches, ...	26 20
11 1/2 - Size 36 x 56 inches, ...	31 40
12 - Size 40 x 66 inches, ...	49 40
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Order by Number.

FULL NUMBER OF STARS SEWED ON BOTH SIDES ON ALL EXCEPT THE TWO SMALLEST SIZES

Size.	Each.	Size.	Each.
2 x 3 feet, ...	\$ 1 16	9 x 16 feet, ...	\$ 14 00
2 1/2 x 4 feet, ...	1 65	9 x 18 feet, ...	15 00
3 x 5 feet, ...	2 30	10 x 15 feet, ...	13 00
3 x 6 feet, ...	2 90	10 x 16 feet, ...	15 00
4 x 6 feet, ...	3 20	10 x 18 feet, ...	16 00
4 x 7 feet, ...	3 60	10 x 20 feet, ...	17 80
4 x 8 feet, ...	4 15	11 x 22 feet, ...	21 00
5 x 8 feet, ...	4 60	12 x 18 feet, ...	18 90
5 x 9 feet, ...	5 20	12 x 20 feet, ...	20 00
5 x 10 feet, ...	5 70	12 x 22 feet, ...	22 50
6 x 9 feet, ...	5 50	12 x 24 feet, ...	25 00
6 x 10 feet, ...	6 00	12 1/2 x 25 feet, ...	27 00
6 1/2 x 12 feet, ...	7 60	15 x 24 feet, ...	24 00
7 x 11 feet, ...	7 80	15 x 25 feet, ...	29 50
7 x 12 feet, ...	8 60	15 x 30 feet, ...	35 25
7 1/2 x 14 feet, ...	9 35	20 x 30 feet, ...	48 00
8 x 12 feet, ...	9 00	20 x 36 feet, ...	57 00
8 x 15 feet, ...	10 70	20 x 40 feet, ...	64 50
8 x 16 feet, ...	11 00	24 x 40 feet, ...	73 00
9 x 14 feet, ...	11 50	25 x 45 feet, ...	95 00
9 x 15 feet, ...	12 30	30 x 50 feet, ...	1 17 00
2x3, with 45 stars, \$1.60.		2x4, with 45 stars, \$2.00.	

U. S. REGULATION.

Size	Each.
4 1/2 x 5 1/2 feet, new size adopted by the War Dept. 1896,	\$3 50
6 x 10 1/2 feet,	4 80

Sewed throughout and finished in a first-class manner, the best of workmanship guaranteed. Small sizes with canvas heading and grommets. Large sizes, from 10x15 feet, with ropes and strong canvas heading.

COTTON BUNTING.



No. 20—Stars and Stripes, ...	Per yard, \$0 10
No. 21 Tri-Color, Plain, ...	" 10
No. 22—Tri-Color, with Stars, ...	" 10

25 inches wide, 50 to 80 yards in a piece.

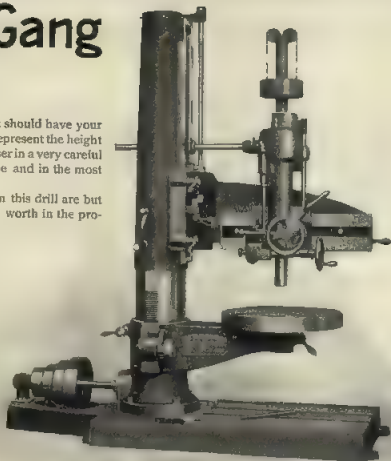
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Now the Gang Radial is a drill proposition that should have your immediate and careful attention. It stands to represent the height of drill efficiency as has its final results to the user in a very careful accurate output handled in a minimum of time and in the most simple and direct manner.

The "points too numerous to mention" on this drill are but few, but they are of real merit and have a real worth in the production of work. There are no queer contrivances, no little tinkering attachments, no countless notions "too numerous to mention."

The Gang Radial Drill will produce more work, more accurate work, more work in a day, than any other Drill of its kind made, and if your drill service calls for modern handling the Gang is the one to handle it. We invite your Drill inquiries.

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No. 95 Combination Set, like all of our adjustable squares, is furnished with our hardened blades at no additional cost. We have been making these sets for six years, and they are giving the best of satisfaction to all who use them, they are also being imitated, but, as is usually the case, the imitation is not as good as the original.

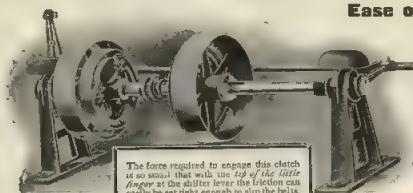
Send for our new catalog describing a line of tools second to none, and in many respects superior to all others. Our tools are carried in stock by nearly all tool dealers.

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Excels all others in Driving Power



The force required to engage this clutch is so small that with the tip of the little finger at the slider lever the friction can easily be set tight enough to slip the belts.

Ease of operation, and in giving the operator perfect control of his machine.

IT IS NOISELESS.

No Tools required to adjust it. Has self-oiling Boxes and can be oiled without throwing off belts.

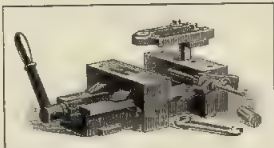
Its DRIVING POWER will not be questioned when it is noticed that the friction shoes are screwed into contact with the rim of a T. G. H. engagement is thus obtained with very little effort at the slider lever.

It will be noticed that the FRICTION ENGAGEMENTS GRADUALLY and that at a moment of driving power can be applied to the machine.

Send for one on trial.

Wilmarth & Morman Co., 157 Canal St., Grand Rapids, Mich.
Manufacturers of NEW YANKEE DRILL GRINDERS.

There's One Proper Way To Set Work On A Drill Press,



and that is thro' the use of our Universal Jig Vise for Drills. The special reasons why it is the proper way are because it affords a faster method of setting, and because it enables you to turn out accurate work without fuss or bother. It gives you a chance to back a cart up to the door and rid yourself of a truck load of blocking that has always been an eyesore and a nuisance. It saves that initial time usually wasted in setting work. It is simple, durable, always ready and is of quick adjustment. It is affording great satisfaction in shops where modern methods prevail, and the trifle of time you may take to ask for full details will put you in a way to save many a dollar. Sent on trial.

Graham Mfg. Co.
Providence, R. I., U.S.A.

Canadian Makers—The Imperial Vise Co., Galt, Ontario.
European Agents—Selig Sonnenbichl & Co., 56 Queen Victoria Street, London, England.

Made in Three Sizes.

No. 1, Jaws 6 in. long, 3/4 in. deep, will open 4 1/2 in., weight, 32 lbs.

Price, \$30.00

No. 2, Jaws 9 in. long, 1 in. deep, will open 7 in., weight, 65 lbs.

Price, \$45.00

No. 3, Jaws 12 in. long, 1 1/2 in. deep, will open 9 1/2 in., weight, 125 lbs.

Price, \$75.00

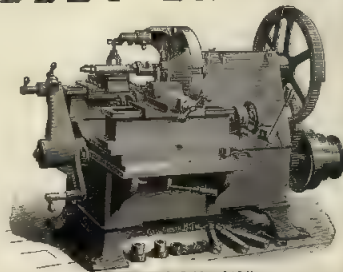
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No. of Pulleys finished in 10 hours on a Streit Pulley Lathe.

DIA.	FACE.	No. in 10 Hours.
12	3	50
16	4	40
24	6	20

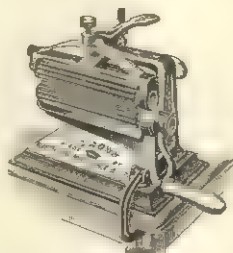
This is 25 per cent. better than any other lathes will do, and we have the proofs. Better write for catalog and prices.

THE A. STREIT MACHINE CO.,
CINCINNATI, OHIO, U. S. A.



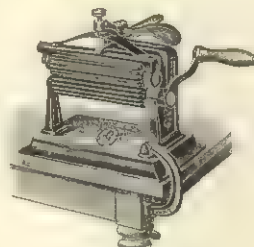
A. STREIT PULLEY LATHE

FLUTING MACHINES.



CROWN.

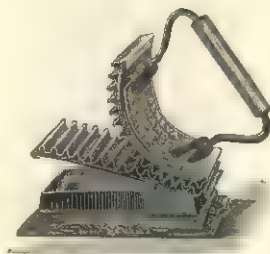
Crown Fluting Machine, 6-inch Rolls, Swivel
Clamp Attachment, 15, 18, 22 or 26 Flutes,
Four Heaters and a Pair of Tongs with Each
Machine, ... Each, \$4 00
Packed Complete, One in a wood box.



KNOX.

Knox-Fluting Machine, 6-inch Rolls, Swivel
Clamp Attachment, 15, 18, 22 or 26 Flutes,
Four Heaters and a Pair of Tongs with Each
Machine, ... Each, \$4 00
Packed Complete, One in a wood box.

HAND FLUTERS.



GENEVA.

Geneva-Hand Fluters, White Metal, Weight per Dozen 65 lbs., ... Per Dozen, \$15 00
Extra Bases-White Metal, Weight per Dozen 85 lbs., ... Per Dozen, 8 00

Packed One-half Dozen in a box.

PINKING IRONS.



PINKING IRON.

SOLID CAST STEEL, POLISHED.

Diamond Teeth-Oval Pattern, Sizes $\frac{3}{8}$, $\frac{1}{2}$, $\frac{5}{8}$, $\frac{3}{4}$ and 1 inch, ... Per Dozen, \$3 00
Packed One Dozen in a box.

SAD IRON HANDLES.



No. 100.

- | | |
|--|-------------------|
| No. 100 Enterprise, "The Best," Walnut, with Tinned Forged Iron Stretcher. | Per Dozen, \$2 50 |
| No. 500-Japanned Stretcher, Walnut Handle | Per Dozen, 2 00 |
| No. 502-Tinned Stretcher, Walnut Handle, | Per Dozen, 2 25 |
- Packed One-quarter Dozen in a package.

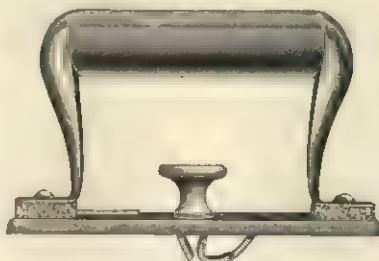


No. 200, WHEN IN USE.



No. 200, WHEN NOT IN USE.

- No. 200—Enterprise Combination Handle, with Wire Side Rest, Walnut, with Tinned Forged Iron Stretcher,
Packed One-half Dozen in a box. Per Dozen, \$3 00



PERFECTION.

- Perfection—Handle, Made of Cold Rolled Steel, Full Nickel Plated, Asbestos Washers keeps Handle cold,
Packed One Dozen in a box. Per Dozen, \$3 00

SAD IRON STANDS.



POTT'S SAD IRON STAND.

- No. 2—Pott's, Japanned, Per Dozen, \$0 60



COMMON SAD IRON STAND.

- No. 1—Common, Japanned, Per Dozen, \$0 00

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GERMANTOWN

TOOL

WORKS.

FORGED FROM ONE
PIECE OF SOLID
CAST STEEL.



GERMANTOWN SHINGLING.

OCTAGON NECK, ROUND POLE, FIRE BRONZE FINISH,
POLISHED BIT.

- | | | |
|-----------------------|--|--|
| No. 316 $\frac{1}{2}$ | Size 1, Weight, 1 lb. 5 oz., Bit, 3 $\frac{3}{8}$ inches, | |
| | Per Dozen, \$13 50 | |
| No. 317 | Size 2, Weight, 1 lb. 11 oz., Bit, 3 $\frac{7}{8}$ inches, | |
| | Per Dozen, 14 00 | |
| No. 317 $\frac{1}{2}$ | Size 3, Weight, 2 lb. 1 oz., Bit, 4 $\frac{1}{2}$ inches, | |
| | Per Dozen, 14 50 | |

One-half Dozen in a box.



GERMANTOWN SHINGLING.

STANDARD HEAD, OLIVE BRONZE FINISH,
POLISHED BIT.

- | | | |
|---------|--|--|
| No. 326 | Size 1, Weight, 1 lb. 5 oz., Bit, 3 $\frac{3}{8}$ inches, | |
| | Per Dozen, \$10 00 | |
| No. 328 | Size 2, Weight, 1 lb. 11 oz., Bit, 3 $\frac{7}{8}$ inches, | |
| | Per Dozen, 10 50 | |
| No. 330 | Size 3, Weight, 2 lb. 1 oz., Bit, 4 $\frac{1}{2}$ inches, | |
| | Per Dozen, 11 00 | |



GERMANTOWN HALF HATCHET.

OCTAGON NECK, ROUND POLE, FIRE BRONZE FINISH,
POLISHED BIT.

- | | | |
|-----------------------|--|--|
| No. 317 $\frac{1}{2}$ | Size 1, Weight, 1 lb. 3 oz., Bit, 3 $\frac{3}{8}$ inches, | |
| | Per Dozen, \$13 50 | |
| No. 318 | Size 2, Weight, 1 lb. 9 oz., Bit, 3 $\frac{7}{8}$ inches, | |
| | Per Dozen, 14 00 | |
| No. 318 $\frac{1}{2}$ | Size 3, Weight, 1 lb. 15 oz., Bit, 3 $\frac{3}{8}$ inches, | |
| | Per Dozen, 14 50 | |

One-half Dozen in a box.



GERMANTOWN BROAD HATCHET.

GERMANTOWN, FIRE BRONZE FINISH, POLISHED BIT.

- | | | |
|---------|---|--|
| No. 362 | Size 2, Weight, 2 lbs., Bit, 4 $\frac{1}{2}$ inches, | |
| | Per Dozen, \$14 00 | |
| No. 363 | Size 3, Weight, 2 lbs. 6 oz., Bit, 5 inches, | |
| | Per Dozen, 16 00 | |
| No. 364 | Size 4, Weight, 2 lbs. 12 oz., Bit, 5 $\frac{1}{2}$ inches, | |
| | Per Dozen, 17 00 | |

HATCHETS. HAINES' PATTERN. SOLID CAST STEEL, ALL POLISHED.



LATHING.

Haines'—Lathing, Bit $2\frac{1}{4}$ inch Cut. Average Weight
with Handle 1 lb., 6 oz., . . . Per Dozen, \$12 00

One-half Dozen in a box.



SHINGLING.

No. 1—Haines', Bit $3\frac{1}{4}$ inch Cut, . . . Per Dozen, \$12 00
No. 2—Haines', Bit $3\frac{1}{2}$ inch Cut, . . . Per Dozen, 18 00

UNDERHILL, BOSTON STAR LATHING HATCHETS.

SOLID CAST STEEL, ALL POLISHED.



No. 20, LATHING.

No. 20 Lathing, Square Head, Bit 2 inch Cut,
Weight with Handle 1 lb., 2 oz., . Per Dozen, \$14 00
Underhill Bros'—Lathing, Genuine, Boston
Star, Extra Large, Square Head, Weight
with Handle 1 lb., 4 oz., . . Per Dozen, 22 00

One-half Dozen in a box.



No. 30, LATHING

No. 30—Lathing, Bad Face, Bit 2 inch Cut, Weight
with Handle 1 lb., 2 oz., . . Per Dozen, \$16 00



CAST SHINGLING HATCHET.

No. 2—Cast, Gold Painted, Hickory Handle, Length 18 inches, Head $6 \times 3\frac{1}{2}$ inches,
One-half Dozen in a box, 12 Dozen in a Case, Weight per case 205 Pounds.

Per Dozen, \$3 25

ICE SCALES.



No. 1155, GERMAN (CRAB) ICE SCALE.

No. 1155—German (Crab) Ice Scales, Capacity 300 lbs., Double Hook,

Per Dozen, \$8 00

ICE BALANCES.



"STEEL KING" ICE BALANCE

MADE ENTIRELY OF STEEL, DIAL NICKEL PLATED, WITH
LARGE BLACK FIGURES.

"Steel King."

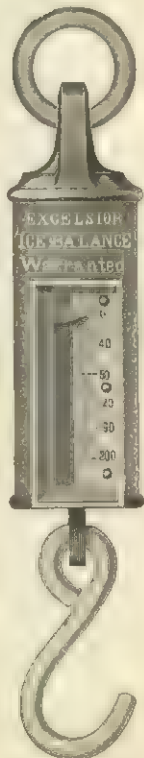
Nos.	200	300	400
Weights,	200 lbs. x 2 lbs.	200 lbs. x 5 lbs.	400 lbs. x 5 lbs.
Each,	\$4 75	5 00	6 00

Weight Boxed Each 4½ Pounds.

No. 302—Excelsior Ice
Balance, Brass Dial,
Heavy, Weighs 200 lbs.
x 5 lbs., . . . Each, \$5 00

No. 303—Excelsior Ice
Balance, Brass Dial,
Heavy, Weighs 300 lbs.
x 5 lbs., . . . Each, 6 00

Packed One in a box.



Nos. 302 AND 303,
EXCELSIOR.

FAMILY SCALES.



AMERICAN FAMILY SCALES

ENAMELED AND ORNAMENTED, REGULATED BY TURNING THE BRASS SCREW ON TOP.

No. 500—American Family, Weighs 24 Pounds by ounces **Steel Top**, made of Steel, White Enamelled Dial, ... Each, \$3 00

No. 700—American Family, Weighs 24 Pounds by ounces, **Tin Scoop**, made of Steel, White Enamelled Dial, ... Each, \$2 30



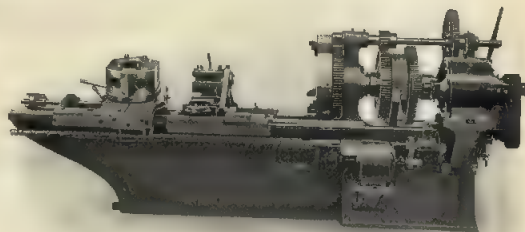
YOUNG AMERICA FAMILY SCALES.

ENAMELED AND ORNAMENTED, REGULATED BY TURNING THE BRASS SCREW ON TOP.

No. 100—Young America, Weighs 20 Pounds by ounces, **White Tile Top**, made of Steel, Brass Dial, ... Each, \$2 50

No. 200—Young America, Weighs 20 Pounds by ounces, **Tin Scoop**, made of Steel, Brass Dial, ... Each, \$2 50

What's the Use of Making One Cut at a Time, When It's Just as Easy and a Lot More Profitable to Make Four or Five?



Cut shows a Gisholt Lathe Electrically Driven by a Variable-Speed Motor, but with Small Constant-Speed Motor Operating the Device for Moving the Turret Rapidly Back and Forth

On a Gisholt Lathe you get a big, strong turret and a rigid carriage into action at the same time. You don't waste a minute in waiting for a lot of pieces to be bored before you can turn them—you just put them on the Gisholt and quit worrying. That's to-day's way of doing things—the way that puts the coin into your clothes and keeps the gray hairs away. That big turret holds six tools. There are ten different tool holders, and the regular tool post carries four tools that are independently adjustable for height and can be instantly brought into position for cutting. The job that calls for more changes than these will give, happens so seldom that it wouldn't pay to make any special provision for it.

Send us some patterns or pieces of work that you want to produce in duplicate for less money than such work has ever cost you before, and we'll tell you how much it will cost on the Gisholt Lathe. We'll do more—we'll give you a written guarantee as to the time it will take, and prove the Gisholt's ability as a time and cost cutter by its past performances in shops for whose management and methods you have a great deal of respect. You'll want the Red Book, anyhow. It illustrates a few of the Gisholt's many profitable operations and a great many of the pieces on which it has shown some worthwhile savings.

Gisholt Machine Company,

Madison, Wisconsin,
U.S.A.

Agents.—Walter H. Foster, 120 Liberty Street, New York City U. Reid Machinery Co., Pittsburgh, Pa. E. A. Kinsey Co., Cincinnati, Ohio.
C. W. Burton, Griffiths & Co., London, Eng. Fenwick Press & Co., Paris, France. Schuchardt & Schutte,
Berlin, Cologne, Vienna, Stockholm and St. Petersburg.



Little Giant.

✓ We make Taps for every conceivable tap purpose. They are made in many sizes, and in the event of our not having a tap for special work we are prepared to make it.

"Little Giant" Taps are Good.

"Little Giant" Taps represent tap making of the highest order. They come thro' the hands of tap specialists all the way. They come to you tested and proven. They are long lived, clean cutting and afford that tap satisfaction which finds its ultimate result in increased earnings. You would do well to make a trial of these taps, and inasmuch as such a trial would cost but very little would suggest that you do so right away. Book shows all.

Little Giant.

Wells Bros. Company,

Greenfield, Mass., U.S.A.



TAPER



PLUG



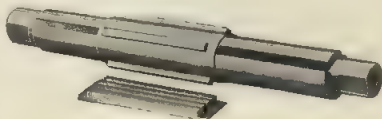
BOTTOMING.

There Was A Time

when solid mandrels were a necessity. That was before the advent of the Nicholson Patent Expanding Mandrels. With the advent of the Nicholson passed the necessity for the solid mandrel and you are up to this proposition:

Whether you'll invest your money in and litter up your shop with solid mandrels that are nine times out of ten unsuited to the work in hand, or get a set of nine Nicholson Mandrels which fit every sized hole from 1 in. to 7 in. in diameter and every small fraction between, absolutely.

Nicholson Mandrels hold work better than solid mandrels and without forcing; they take up but little room; they are always ready; there is no hunting thro' a pile of mandrels for one that's "pretty near" right but not right enough. The cost is not much. The Book tells all, yours on request.



Nicholson Patent Expanding
Lathe Mandrels.

W. H. Nicholson & Co., Wilkes-Barre, Pa., U.S.A.

TRICYCLE WAGONS.



CYCLONE TRICYCLE WAGON.

No. 301 Cyclone, Body 14x34 inches,
Wheels 12 and 18 inches, Body
and Back of Seat made of Sheet
Steel, Malleable Iron Gear, Tin-
ned Steel Wheels, Hinged Seat
and Seat Boards, . . . Each, \$4 50

Packed One in a crate, Weight Each 33 Pounds.

GOAT OR DOG SULKIES.

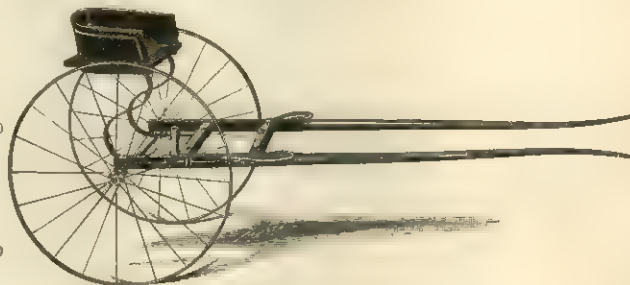
No. 400—Goat or Dog Sul-
kies, Hardwood, Painted
Vermillion, 22-inch Steel
Wheels, Steel Springs,
Striped and Ornamented.

Each, \$4 50

Weight Each 12 Pounds.

HARNESS.

Harness—For above, Extra
Quality, . . . Per Set, \$3 00



GOAT OR DOG SULKEY.

COASTERS.



BUCKBOARD COASTER.

No. 302—Buckboard
Coasters, Length 42
Inches, 12 and 18-inch
Wheels, Half Oval Tires,
Painted and Varnished,
Guided by Shafts, Regu-
lated by Brake Attach-
ment, . . . Each, \$4 50

Packed Two in a crate.

Weight Per Dozen 480 Pounds.

TOY WAGONS.



HAY WAGON.

No. 6 Hay Wagon, 6 and 8-inch Spoke Wheels,
Tin Tires, Body 11 x 9 inches, Nicely Painted,
Per Dozen, \$4 50
Packed One Dozen in a case, Weight Per Dozen 65 Pounds.



Nos. 27 AND 28.

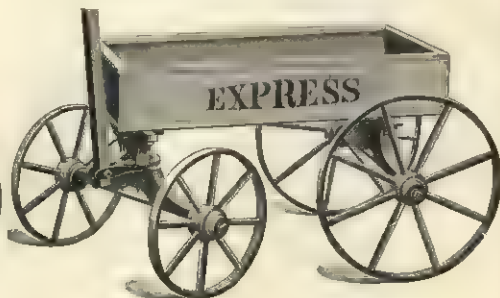
No. 27 Express, Body 7 x 14 inches. Wheels 6 and 8
inches. Tin Tires, Painted Red, Per Dozen, \$4 90
Packed One-half Dozen in a crate, Weight Per Dozen 38 Pounds.
No. 28 Express, Body 8 x 10 inches, Wheels 6 and 8
inches. Tin Tires, Varnished on Wood,
Edge of Bottom Painted Red, Per Dozen, \$5 50
Packed One-half Dozen in a crate, Weight Per Dozen 40 Pounds.



No. 29.

No. 29 Express, Body 10 x 19 inches. 8 and 10-inch
Wheels, Iron Tires, Varnished on Wood,
Per Dozen, \$8 00

Packed One-half Dozen in a crate, Weight Per Dozen 50 Pounds.



No. 34.

No. 34 Express, Body 25 inches Long, 12 inches
Wide, 5 inches Deep. Iron Axles and Fifth
Wheel, Iron Tires, Iron Boxes in Hubs,
Wood Tongue Draw, Wood Wheels 11 and
14 inches, Box of Ash Varnished on Wood,
Edge of Bottom Board and Moulding Around
Top of Box Painted Red, Per Dozen, \$14 00

Packed One-half Dozen in a crate, Weight Per Doz. 180 Pounds.

TOY CARTS.



TOY CARTS.

No. 0 Toy Carts, 6-inch Spoke Wheels, Body 5 x 9 inches, Painted,
Packed One Dozen in a case, Weight Per Dozen 20 Pounds. Per Dozen, \$1 80
No. 1 Toy Carts, 8-inch Spoke Wheels, Tin Tires, Body 6 x 11 inches Painted in Bright Colors. Per Dozen, 2 40
Packed One Dozen in a case, Weight Per Dozen 35 Pounds.
No. 2 Toy Carts, 8-inch Spoke Wheels, Tin Tires, Body 7 x 14 inches, Painted and Striped, ... Per Dozen, 3 30
Packed One Dozen in a case, Weight Per Dozen 35 Pounds.

BASE BALL BATS.



No. 5—Boys' Bottle Bat, Plain Finish, Well-made and Thoroughly Seasoned, ... Per Dozen, \$0 80



No. 12—Boys' Ash Bottle Bat, Seasoned and Oil Finished, Length 28 and 30 inches, ... Per Dozen, \$1 60

No. 18—Boys' Axle-Tree Bottle Bat, Extra Grade Seasoned Ash, Oil Finish, Length 30 inches, ... " 2 50



No. 25—Men's Professional League Bottle Bat, Extra Quality Ash, Oil Finish, Length 33 to 35 inches, ... Per Dozen, \$4 50

No. 35 Wagon Pole Bottle Bat, Selected Straight-Grained Ash, Oil Finish, Length 33 to 35 inches. 8 00

No. 20 Intercollegiate Match Bat, Fine Quality, Second-Growth Ash, Oil Finish, Length 33 to 35 inches, ... " 10 00

Nos. 25, 35, 20 Packed Each Bat in a Separate Bag.



No. 100—Goldsmith's League Bottle Bat, Made of the Finest Selected Second-Growth Canadian Ash, Perfect in Shape and Finish, Air Dried, Hand Turned and Hand Finished, Length 33 to 35 inches, Per Dozen, \$13 00
Each Bat Packed in a Separate Bag.



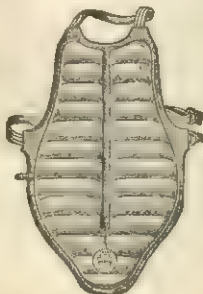
No. 140—Louisville Slugger Bat, Hand Turned, Second Growth, Straight Grained Ash, Length 33 to 35 inches, ... Per Dozen, \$13 00
Each Bat Packed in a Separate Bag.



No. 240—Louisville Slugger Bat, Same Description as No. 140, but Tape Wrapped, ... Per Dozen, \$15 00

No. 340—Louisville Slugger Bat, " " " 140, " " " and Burnished, " " 15 00
Each Packed in a Separate Bag.

BODY PROTECTORS.



No. 1—Reach's Body Protector, League, Inflated Rubber, ... Each, \$10 00

No. 14—Reach's Body Protector, Amateur, Inflated Rubber, ... " 8 00

No. 175—League Body Protector, Canvas, Heavy Cane Ribs, Padded with Felt, ... " 4 50

No. 160—Boys' Body Protector, Canvas, Padded and Quilted, ... " 1 60

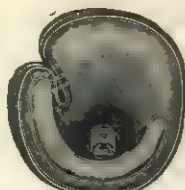
CATCHERS' MITTS.



No. 650—Boys' All Tan Leather, . Per Dozen, \$4 00



No. 760—Professional, Heavy Genuine Horse Hide Palm, Russia Tan Leather Back and Fingers, Improved Deep Pocket, Wrist Laced, Per Dozen, \$18 00



No. 730—Men's Russia Tanned Palm and Fingers, Thumb Reinforcement, with Improved Wrist Lacing and Deep Pocket, . Per Dozen, \$8 00



No. 810—Professional, Fine Grade, Oil Tanned, Horse Hide Palm, with Large Deer Skin Pad in Center of Palm, Drab Horse Hide Fingers, Wrist Lacing, Improved Deep Pocket. Per Dozen, \$34 00



No. 840—Professional, Finest Smoked Horse Hide Palm, with Calf Skin Back and Fingers. Extra Well-made and Padded, Wrist Lacing, Improved Deep Pocket, . Per Dozen, \$30 00

BASEMEN'S MITTS.



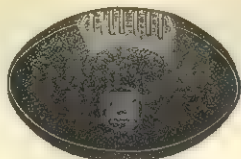
No. 500—Boys' Yellow Buckskin, Finished Leather Palm, Heavy Brown Duck Back, . Per Dozen, \$4 00

No. 510—Amateur, Sage Green Leather Palm, Improved Padded Heel, . Per Dozen, \$8 00



No. 550—Men's Olive Green Leather, with Improved Padded Heel, . Per Dozen, \$18 00

FOOT BALLS.



RUGBY.

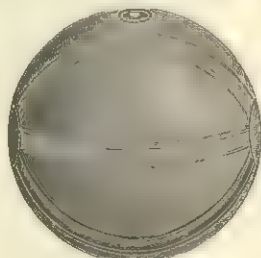
- No. 100 Yellow Leather, Saranac Tan, Canvas Lined, Regulation Size, Pure Gum Bladder, Per Dozen, \$20 00
 No. 105 Pebble Grain Leather, Canvas Lined, Regulation Size, Pure Gum Bladder, Per Dozen, \$27 00
 No. 110 Domestic Tanned Pebble Grain Foot Ball Leather, Sewed with Heavy Wax Thread, Regulation Size, Pure Gum Bladder, Per Dozen, \$48 00
 No. 120—Specially Tanned Havana Brown Pebble Grain Leather, Welted Seams, Best Pure Gum, Regulation Size, Per Dozen, \$60 00



ASSOCIATION.

- No. 130—Pebble Grain Sheepskin, Duck Lined, Pure Gum Bladder, Per Dozen, \$24 00
 No. 135 Extra Quality Pebble Grain Leather, Canvas lined, Regulation Size, Pure Gum Bladder, Per Dozen, \$30 00
 No. 140 Best Quality Pebble Foot Ball Leather, with Pure Gum Bladder and Lacing Needle, Per Dozen, \$60 00

BLADDERS.



RUBBER.

Nos.	1	2	3	4	5	6
Circumference, inches, 18	21	24	27	30	33	
Per Dozen,	\$15.00	18.00	21.00	24.00	27.00	30.00

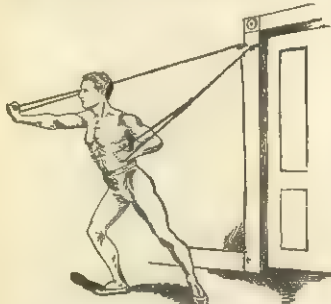
Extra Keys, for Rubber Foot Balls, Per Dozen, \$1 25



RUGBY BLADDER.

- No. 150—Pure Gum Rugby Bladder, Per Dozen, \$11 00
 No. 155—Pure Gum Association Bladder, Per Dozen, \$14 00
 No. 160—Pure Gum Striking Bag Bladder, Boys' Size 10 00
 No. 165—Pure Gum Striking Bag Bladder, Practice Size, \$12 00
 No. 170—Pure Gum Striking Bag Bladder, Professional Size, 16 00

BAPTIST EXERCISERS.



BAPTISTE ORIGINAL, NOS. 0, 1 AND 2.

A simple machine, without pulleys, consisting of two long strands of covered rubber cable, and constructed so that one may reverse the exerciser for executing upper or lower movements, answering the purpose of two machines. A good cheap Exerciser, made in three tensions—light, medium and heavy.

- No. 0—Plain Finish, Each, \$1 00
 No. 1—Nickel Finish, " 1 30
 No. 2 Nickel Finish, on Reversible Swivel, " 2 00



BAPTISTE GLADIATOR, No. 6.

No. 6 Gladiator Two pulleys with best braided cords passing over them; covered rubber cable, attached to top and bottom which regulate the tension by either stepping forward or backward, machine can be reversed, for executing upper or lower movements, pulleys are cone bearing and noiseless. All metal parts nicked, cone bearing pulleys, Each, \$4 00



BAPTISTE HERCULES, No. 5.

No. 5 Hercules—Covered rubber cable top and bottom attached to best braided cord, passing over pulley, actually taking all the wear off machine. Pulley is cone bearing and noiseless. Any part of this machine can be replaced at a small expense: made in two tensions, light for ladies, heavy for men. All metal parts nicked, cone bearing pulley, Each, \$3 00



INFIELDERS' GLOVES.



No. 10—Boys' Size, Red Leather, Extra Heavily Padded, ... Per Dozen, \$4 00



No. 50 Amateur Size, Ox Blood Leather, well Padded and Felt Lined, ... Per Dozen, \$8 00

No. 22—Men's Size, League Shape, Excellent Quality, Smoked Indian Buck Leather and Full Padded, ... \$16 00



No. 150 Men's Size, Genuine Asbestos Fire-Proof Calf Skin, Heavily Padded and Extra Well-Made, Improved Heel, ... Per Dozen, \$27 00

No. 158—Men's Size, Selected Velvet Tanned Buck Skin, Extra Heavily Padded with the Best Felt, Improved Web between the Thumb and Index Finger, Improved Padded Heel, ... Per Dozen, \$32 00

BASE BALL MASKS.



No. 5—Boys' Mask, Extension Pads, Heavy Wire, ... \$4 00
Per Dozen, ...



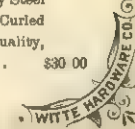
No. 10—Youths' Mask, Two-Piece Leather Pads on each Side, Good Quality Wire, ... Per Dozen, \$8 00



No. 12—Amateur Mask, Black Enameled Wire, well Padded with Double Side Pieces, Reinforced Clamps, ... Per Dozen, \$13 00



No. 25—Regulation League Mask, Extra Heavy Steel Wire, Black Enameled, Padded with Best Curled Hair, Chin and Forehead Rests, extra Quality, ... \$30 00
Per Dozen, ...

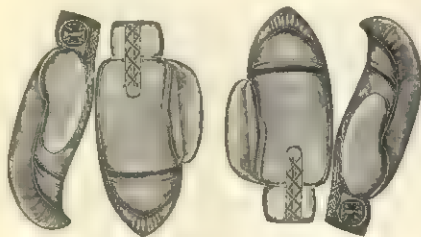


BOXING GLOVES.



AMATEUR.

- No. 15—Boys' Red Tan Leather, Hair Filled, Lace Wrist, ... Per Set, \$2 00
 No. 20—Men's Amateur, Red Tanned Leather, Hair Filled, Lace Wrist, ... Per Set, 2 60



CALIFORNIA PATTERN.

- No. 25—California Style, Extra Grade Wine-Colored Kid Leather, Palm Grip, Safety Sparring Thumb, Hair Filled, Well-Made and Nicely Finished, ... Per Set, \$4 00

STRIKING BAG GLOVES.



No. 60.

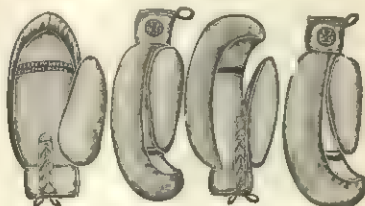
No. 70.

- No. 60—Soft Oil Tan Horse-Hide, Assorted Colors and Sizes, Weight 4 oz. to the Pair, Per Pair, \$0 90
 No. 70—Glove Style, Red Tan Leather, Hair Filled, ... Per Pair, 1 00



CORBETT-RUHLIN PATTERN.

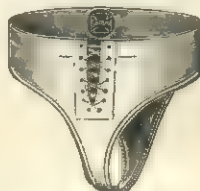
- No. 30—Corbett Style, Genuine California Napa Tan Leather, Improved Palm Grip and Padded Wrist, Filled with Curled Hair, Laced Wrist, ... Per Set, \$5 00
 No. 40—Safety Sparring Glove, Fine Green Colored Kid Leather, Improved Padded Palm Grip and Wrist, Leather Bound, Filled with Extra Good Curled Hair, Laced Wrist, ... Per Set, 7 00
 No. 50—Corbett-Ruhlin Glove, Finest Imported Brown Kid Leather, Improved Padded Palm Grip and Padded Cuff, Welted Seams, Filled with Finest Curled Horse Hair, and Finished in the best possible manner, ... Per Set, 9 00



THE TERRY MCGOVERN GLOVE.

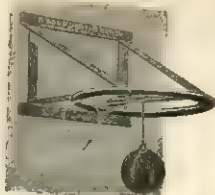
- No. 55—The Official Terry McGovern Glove, Finest Imported French Kid, Welted and Silk-Stitched Throughout, Made of the Finest Materials in the best possible manner, 5, 6 and 7 oz., Per Set, \$12 00
 In ordering state whether for Light or Heavy Weight.

SUPPORTERS.



- No. 20—White Canton Flannel, Good Grade, Strongly Sewed, ... Per Dozen, \$4 00
 No. 40—White Canton Flannel, Extra Heavy, Made in the Best Possible Manner, All Seams Stayed and Turned, ... Per Dozen, 6 00

STRIKING BAG PLATFORMS.



No. 400.



Cut Shows Striking Bag Swivel, No. 700.

- | | |
|--|---------------|
| No. 400 Noiseless Stationary Wall Platform, Well-Seasoned Oak, Highly Polished, 24 inch Rim, | Each, \$ 0 00 |
| No. 600 Noiseless Adjustable Wall Platform, Well-Seasoned Oak, Highly Polished, 24 inch Rim, | " 12 00 |
| No. 700—Improved Striking Bag Swivel, Japanned, | " 80 |

Platforms priced without Swivel or Bag.

STRIKING BAGS.



- No. 25—Red Tanned Leather, Duck Lined, Seamless Bladder, Amateur Size, ... Each, \$2 00
- No. 30—Wine Colored Leather, Well-Made, Seamless Bladder, Practice Size, ... Each, \$3 00
- No. 35—Brown Kid Leather, Covered Seams, Strongly Made, Seamless Bladder, Practice Size, ... Each, \$3 75



- No. 40—Wine Colored Bag, with Dark Brown Double Top, White Covered Seams, Seamless Bladder, Professional Size, ... Each, \$4 25
- No. 45—Finest Brown Kid Leather, Weltd and Covered Seams, Carefully Finished, Pure Gum Bladder, Professional Size, ... Each, \$6 00
- No. 50—Special Gray Smoked Horse Hide, Covered Seams, Attractive and Durable, Pure Gum Bladder, Professional, ... Each, \$8 00



- No. 55 Best Wine Colored Kid, with Olive Top, Cup Hanger, Covered Seams, Pure Gum Bladder, Pear Shaped, ... Each, \$4 50



WITH DOUBLE END LOOP AND ELASTIC CABLE.

- | | |
|---|-------------|
| No. 60 Same as No. 40, but with double End, | Each \$5 00 |
| No. 65—Same as No. 45, but with double End, | 7 00 |
| No. 70 Same as No. 50, but with double End, | 9 00 |

STRIKING BAG AND FOOT BALL INFLATORS.



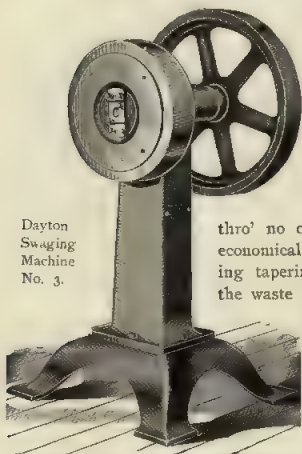
- No. 175—Pocket Foot Ball Inflators, Polished Brass, Nickel-Plated,

Per Dozen, \$3 00

ROGERS ADJUSTABLE REAMERS,**FOUR STYLES AND ALL SIZES
CARRIED IN STOCK.****THE JOHN M. ROGERS, BOAT, GAUGE AND DRILL WORKS,**

Please send for No. 6 Catalog.

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GLOUCESTER CITY, NEW JERSEY, U.S.A.Self-Oiling Compound Motor-Driven Compressor, Class J. C. M.
Built for 115 lbs. Working Pressure any Volume.**Internal Self-Oiling****AIR and GAS
COMPRESSORS****For All Purposes.****In Stock:**342 ft. Duplex Compound
Steam and Belt Driven.
134 ft. Straight Line Steam
Driven. 134 ft. Belt Driven.
96 ft. Belt Driven. . . .**The Gray-Blaisdell Co.****Bradford, Pa.**Dayton
Swaging
Machine
No. 3.**The Way To Do
Effective Swaging
Is The Dayton Way.**

The Dayton Way is by pressure rather than blows, and in this way the metal treated is given a strength, rigidity, solidity and hardness that comes thro' no other method of swaging. It is a faster and more economical way of swaging and has special usefulness in making tapering, pointed or graduated rods, shafts, etc. It saves the waste coming thro' reductions by milling, grinding or turning. It is limitless in operations and you can well afford to handle your swaging in this way. A very interesting book on swaging is sent on request.



Dayton Swaging Machine No. 1

Excelsior Needle Co., - Torrington, Conn., U.S.A.

Coventry Swaging Co., Ltd., White Friars Lane, Coventry, England, Agents for Great Britain. Farwick Freres & Co., 21 Rue Martel, Paris, France, Agents for France, Italy, Belgium, Spain, Portugal and Switzerland.

POPULARITY

Is Generally the Reward of Merit.



The genuine Stillson and the Trimo Wrenches are notable examples. Popular because they are best. Best because they are made right and out of the right kind of materials. We carry a large stock in both styles, in 6", 8", 10", 14", 18" and 24", and desire to correspond with large or small consumers. Have you a copy of our Catalogue No. 115A of Tools for Machinists and Metal Workers?

Hammacher, Schlemmer & Co., New York City, since 1848.



Here Is A Grinder For Your Tool Room

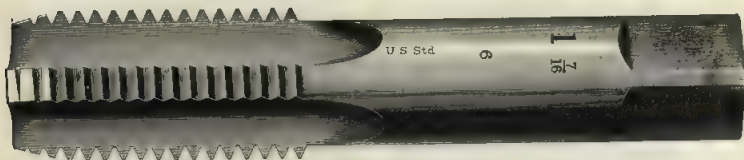
which will grind any tool or cutter used in a machine shop. It has the following improvements over other grinders on the market:

The Spindle Head is graduated and turns to any desired position to the table. The table is graduated to grind to any desired taper. Table is moved by means of clutch handle which can quickly be set to the most advantageous position for the operator. Attachment for grinding gear cutters, grinds them always true to the center. Base and column are heavy and rigid. Spindles of tool steel hardened and ground. All bearings scraped to fit. Price, \$200.00 Net F. O. B.

The Oesterlein Machine Co.
Cincinnati, Ohio, U.S.A.

AGENTS: Farbanks Co. New York and Buffalo
United Machine & Tool Co. Indianapolis
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National Supply Co., Toledo, Ohio
Niles Tool Works Co., New York and Boston

PRATT & WHITNEY CO.



TAPS

P. & W. special process taps have one-third longer life than any others made.

Send for New Small Tool Catalog A, to 136 Liberty Street, New York.

Small Tool Department.

HARTFORD, CONN.

New York, 136-138 Liberty Street. Boston, 144 Pearl Street. Chicago, 45 So. Canal Street. St. Louis, C. A. Thompson, 516 N. 3d Street. Philadelphia, 21st and 22nd
Callowhill Streets. Pittsburg, D. L. Macomber, Frick Building. Montreal, Chas. Spaulding, 30 Cathcart Street. Mexico City, Robert Baker & Co.

THE STORY OF THE

FLAT TURRET LATHE

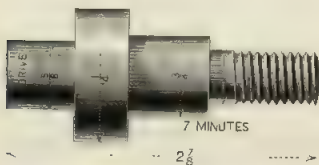
**TOLD IN A DOZEN
OR SO CHAPTERS.**

CHAPTER THIRTEEN

Screw Cutting on the "Flat Turret"

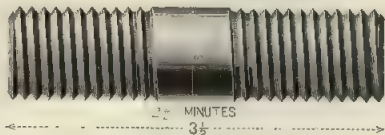
is especially well done, both in the matter of time saved as well as an utmost refinement in the finished product.

If there's any one thing the "Flat Turret" excels in it's



accuracy in screw cutting, and proof of this lies in the fact that screws are cut with an error in lead of less than .015625 of an inch in 18 inches long.

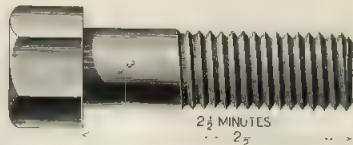
In order to appreciate the extreme smallness of this error it will only be necessary to measure with a good scale, the lead of the best taps made, the lead screws of engine lathes, or the



screws cut by other machines, all of which will show errors from four to ten times greater.

This accuracy comes through the special design and method of making the chasers, whereby the errors of two hardenings and one lead screw are done away with. After accuracy comes time saving. You'll note what this amounts to on the pieces here shown. This is under every-day, normal shop conditions and is subject to substantial reduction by a fast operator.

You'd do well to get a "Flat Turret" into your shop right away. The other reasons why you should are in the book



JONES & LAMSON MACHINE CO.

SPRINGFIELD, VERMONT, U. S. A.

ENGLISH OFFICE: Jones & Lamson Machine Co., Exchange Buildings, Stephenson's Place, Birmingham, England

Germany, Holland, Belgium, Switzerland Austria Hungary and Italy: M. Koyemann, Charlottenstrasse 112, Düsseldorf, Germany.

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ROLLING STEP LADDERS.



Cut Shows Bent Ladder Running Close to Base Shelf.
No. 1.

No. 1—Rolling Step Ladders, Made of Oak, Fitted with Plated Malleable Irons.
Each, without Track, \$11 00



Cut Shows Bent Ladder Running Against a Narrow Base Shelf.
No. 3.

No. 3—Rolling Step Ladders, Made of Oak, Fitted with Plated Malleable Irons. Arms can be raised up allowing ladder to swing in close to shelving out of the way when not in use.
Each, without Track, \$11 00

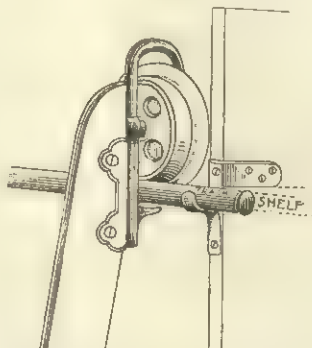
NOTE—When ordering Nos. 1 and 3 give the exact height from floor to top of base or counter shelf; the exact width of base shelf to front edge of uprights or partitions in shelving; and the exact height from top of base shelf to top of the shelf to which track is to be fastened. The track should be fastened to a shelf that is between three or four feet down from the top.



Cut Shows Trolley or Ceiling Ladder
No. 15.

No. 15—Trolley or Ceiling Rolling Ladders, Made of Oak, Fitted with Plated Malleable Irons. Each, without Track, \$10 00
Trolley Track—Including Brackets and Bolts, Per Ft., 20
Has strong iron fastened at the top in which two paper filled wheels run on a round steel track. The bottom of the ladder has two wheels attached that run on the floor. The round steel track rests in neat and strong malleable iron brackets which are bolted to ceiling. These brackets grip about two-thirds around the track and securely hold it in place.

TRACKS FOR LADDERS.



Cut shows Round Steel Track and Supporting Bracket.

STEEL TRACK FOR NOS. 1 AND 3.

TRACK IS MADE OF ROUND STEEL TUBING, AND BOTH REGULAR AND EXTRA STRONG ARE ONE INCH IN DIAMETER ON THE OUTSIDE. THE LONGEST LENGTHS OF STEEL TRACK MADE ARE 15 FEET; 15' WANTED LONGER, TWO OR MORE LENGTHS ARE JOINED TOGETHER, AND IS FURNISHED SO THAT JOINTS WILL MEET AT CENTERS OF UPRIGHTS OR PARTITIONS IN SHELVING.

Regular Steel Track—Including Brackets and Screws, ... Complete, Per Foot, \$0 20
Extra Strong Steel Track—Including Brackets and Screws, ... Complete, Per Foot, 25

For Full Description and Directions for Ordering Write for Special Catalog.

THE MARSH MOTOR BICYCLE IS STRONGLY GUARANTEED.

When a manufacturer guarantees his goods as liberally as the Motor Cycle Mfg. Co., Brockton, Mass., guarantee their Marsh motor bicycles, he certainly must know what he is making.

Their guarantee which covers the motor cycle, motor and apparatus is as follows:

"We guarantee our motor cycle to carry the rider a mile in two minutes or better, and that it will carry a rider weighing 175 pounds up a 10 per cent. grade at the rate of 10 miles per hour. And we hereby agree with the purchaser that in the event of the motor cycle failing to perform either of the above-named achievements, we will replace it with another or refund the money.

We guarantee the motor to work perfectly at all times, provided that it is kept oiled as per our instructions, and to develop $1\frac{1}{4}$ actual brake horse power. We guarantee it to do this whether attached to our motor cycle or bought separately, and if it fails to do as above said, we agree to refund money to the purchaser. We further agree to replace any part that becomes broken in ordinary usage, (collisions excepted), or that wears out through continuous hard service.

We guarantee our carburetor to supply to the engine at all times a mixture that will give the maximum amount of power that it is possible to be derived from a given size of engine. That it can be adjusted to meet a range of gasoline whose specific gravity ranges from sixty-eight to eighty degrees. That it will not be effected by heat or cold. That it will not flood the engine with gasoline. This part of the guarantee applies to the carburetor whether attached to our motor or bought separately.

We guarantee the spark coil to work perfectly at all times, provided that it is connected with the necessary battery power, i. e. 4 cells of 6 amperes and $1\frac{1}{2}$ volts per cell, and that if it fails to do so we will replace it with another.

We guarantee our new and improved ignition plug to work perfectly at all times, provided that it is kept clean, and will replace it if it becomes broken or fails to work at any time.

We guarantee the belt to transmit the power from the engine to the rear wheel without any noticeable slippage, and the same to withstand all strain that it is subjected to while performing the service required of it; and if at any time it should become worn out or fail to transmit the power we will replace it with a new one.

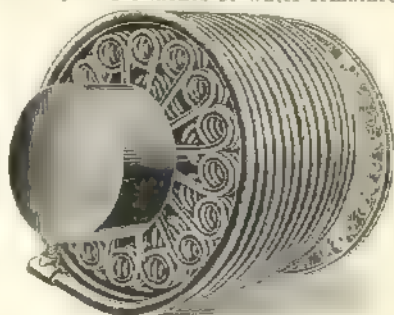
The above guarantee is in force for the calendar year of 1902.

MOTOR CYCLE MFG. CO.

With the above guarantee the dealer can feel that after he sells the Marsh motor bicycle, he will not be in hot water from complaint, and the knowledge that he has such a guarantee back of him will help him considerably in making sales.

THE SALAMANDRINE BOILER.

An interesting demonstration of the Salamandrine boiler was made during the Madison Square Auto Show. The boiler proved itself all that its name implies and justified the claim of the maker that it will not burn out or explode. The boiler which was tested was mounted several feet above the floor. The fire box was provided with a large mica door, exposing the entire lower part of the boiler to view. The burner working with a moderately hot flame, produced 200 pounds of steam with water at about the middle of the gauge glass. A $\frac{1}{2}$ -inch pipe fitted with globe valve (which was open) conducted the steam several feet from the boiler, where it was discharged through an elbow towards the floor. The steam issuing from this pipe appeared quite dry. The pressure was maintained at 200 pounds until only 2 or 3 inches of water remained in



The Salamandrine Boiler

the boiler, when it rapidly fell until no water was visible in the glass. The burner remaining lighted, in three or four minutes the bottom of the boiler became a dull red. Then cold water was admitted from the city mains; the boiler instantly commenced to steam, and in two and a half minutes the gauge showed 180 pounds of steam. This test was repeated hundreds of times during the week, and not the slightest sign of a steam leak was apparent. The boiler is composed of a central column 5 inches in diameter by 16 inches long. At the top is provided a cylindrical steam dome 10 inches in diameter and 5 inches high. About twenty-four small 3-inch vertical coils of $\frac{3}{8}$ -inch pipe surround the column and connect to it top and bottom. Outside of this is a feed water heater in the form of a large coil of $\frac{1}{2}$ -inch pipe and the whole is incased in a metal and asbestos jacket.

The Salamandrine Boiler is made by Salamandrine Boiler Co., 220 Broadway, N. Y.

An order of voluntary dissolution has been granted to the Rochester (N. Y.) Cycle Manufacturing Co., Albert Benjamin, one of the proprietors, was appointed receiver.

The Forskell Motor Co., Anderson, Ind., will present a Forskell Speedometer to every driver of a motor vehicle who, during the year 1902 travels in such vehicle a measured mile, officially timed, in 60 seconds or less. This applied to motor cycles, tricycles, quads and automobiles.

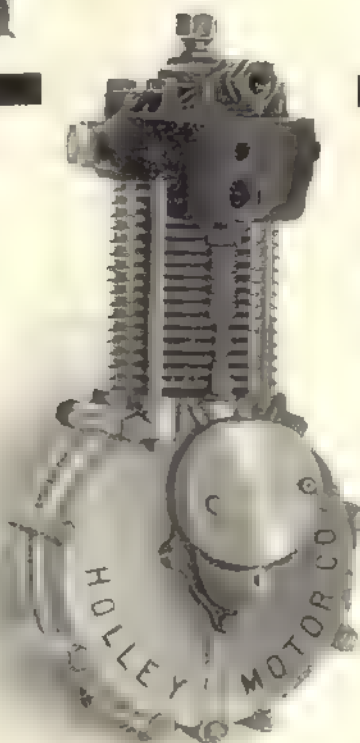


*"The Carburetor is of the well known
LONGUEMARE type."*

Such is the expression used in hundreds of catalogues describing the merits of the Longuemare type.

Our Carburetor is the LONGUEMARE of which we are sole American agents and licensed manufacturers.

Manufactured in six sizes for motors ranging from 1 to 20 H. P. In requesting price, give size of inlet, speed, horse power and type of motor.



*2 3-4 Horse Power
Water Cooled Head
Motor*

Designed for use on vehicles weighing from 400 to 600 pounds, guaranteed to propel such a vehicle 18 miles an hour, and to ascend a 17 per cent grade at the rate of 5 miles per hour. Write us for printed matter and prices.

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BRADFORD, PA.

THE HOLLEY MOTOR BICYCLE



PRICE, \$200

FEATURES FOR 1902

1. Brake H. P. Motor.

Gasoline capacity 1 1/2 gal. for 1 p.m.

Concealed Wires.

White Base Paint.

Long Service Cart uretter.

Special Motor Bicycle Tires.

Narrow Tread.

Plated Copper Tires.

Guaranteed Motor Life (any yet given).

At last the best position of the Motor, which we originated last year, and is now recognized to be the only practically correct one. A series of tests.

HOLLEY MOTOR CO.

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California State Agent: JOSEPH HOLLE, 20th and Folsom Streets, San Francisco, California.

THE INGERSOLL-SERGEANT DRILL COMPANY.

All Compressors, Rock Drills

Cool Cutters, Quarrying Machinery



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Self Closing Constant Feed Oil Cup



For supplies of all kinds of constant feed easily opened from any side can be cleared without removing from Machine. Made in sizes 1/2 in., 3/4 in., 1 in., 1 1/4 in. and 1 1/2 in. largest diameter.

Write for prices and samples to

The Winkley Co., Hartford, Conn.
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AIR COMPRESSORS
ENCLOSED SELF OILING
DUST PROOF
THE BLANCHARD MACHINE CO.
BOSTON, MASS.



SIX SIZES
"IMPERIAL"
COMPRESSORS
RAND DRILL COMPANY
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TYPE XI

A Knock-down Argument

For Q. & C. PNEUMATIC TOOLS. They accomplish better work at one third the cost, than hand-work with hammer or sledge.

Pneumatic Hammers, Riveters, Hoists, Drills, Etc.

What keeps you from investigating? Our catalog is free.

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Almond Drill Chuck.

Sold at all Machinists' Supply Stores.
T. E. Almond,
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Motor Driven AIR Stationary and Portable COMPRESSORS

Capacities, 4 to 1000 cu. ft. of free air per minute. These compressors may be installed at the most convenient point of distribution, thereby avoiding expensive piping. The motor is started and stopped by our automatic governor, so that power is used only when work is being performed.

Write for Catalogue 30

Christensen Engineering Company
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of any kind. Especially the kind you can't get elsewhere. Good work, prompt work, work that satisfies the buyer. When you want something other people don't make write **The Rowbottom Machine Co., Inc., Waterbury, Conn.**

The "Bennett" Self-Closing Oil Hole Cover
 Invented by Bennett & Co. for a hole of 1/4 in. Kind No. 1 is patented and applied. Made in U.S.A. by Bennett & Co. Boston, Mass.
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 For Iron and Brass Castings
 Various styles and sizes. For
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 All Sizes and
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SINGLE FRAME STEAM HAMMERS



We manufacture Hammers of every description.
PITTSBURG SHEAR KNIFE AND MACHINE CO.
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 Designers and
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 Send Sample for Estimates

THEY SAVE MONEY.
 Our combined drill and countersink will also do better
 work than other tools used for countersinking lathe work.
 Catalog, including full line of Micrometer Calipers,
 sent free.
J. T. SLOOMER & COMPANY,
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PATENT UNIVERSAL SCREW-CUTTING CENTRE, BEVEL ANGLE, AND TWIST DRILL GAGE.
J. WYKE & CO. BOSTON, MASS. U. S. A.
MFG. FINE MACHINISTS' TOOLS.
 FOREIGN AGENTS
 Sole Importers for Germany, Austria, Hungary, Bohemia, and the Baltic States.
 SCHNEIDER & SONS, 10, KARLSTRASSE, BERLIN, GERMANY.

Buy a Gridley Automatic Turret Lathe

and save from \$500 to \$1,200 per year more than you can with any hand operated machine. It can be "set up" quicker and it will do better and more work than any other automatic. The length of any cut can be changed without stopping the machine. The turning tools do not overhang and are quickly and accurately adjusted.

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Diamond Tools

FOR DRESSING, TURNING & SHAPING EMERY WHEELS and other Mechanical Purposes.



THOS. L. DICKINSON,
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Here's a Better Power Hack Saw.



Improved design pre-vents the breaking of blades and insures true work. Blade is graduated to 2 1/2 in. angles. Has horizontal adjustment and is reversible. Three sizes. List prices, \$10 to \$20. Write for details.
L. H. Olmsted, Manufacturer,
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DIXON'S Graphite Compound, for Steam, Gas, Water or Air Joints, and all Kinds of Screw Threads.

SUPERIOR IN EVERY WAY TO RED LEAD.

JOSEPH DIXON CRUCIBLE CO., Jersey City, U. S. A.
 Salesrooms in New York, London, Philadelphia and San Francisco.



Vitrified Emery and Corundum Wheels.

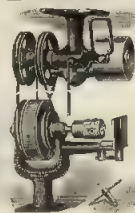
For fast cutting and long wearing; will cut any metal ever made; will run wet or dry. Catalog G free.

Vitrified Wheel Co., Westfield, Mass., U. S. A.



The Vandegrift Coupling Co.

Removed to
Evansville, Ind.
 Ready for Business



If the Tapping of 10,000 Holes in Ten Hours is of Interest to you—

We are pleased to direct your attention to the means to such a profitably productive end.

The tapping of work as above is the regular every day duty of our Sensitive Bench Tapper.

With this Tapper it is not necessary to drill clearance for end of tap; it doesn't break taps.

These tools are for busy shops where the problem of handling work well and rapidly has to be met.

Then there is our Sensitive Quick Return Friction Tapping Attachment for drill press use, another good tool.

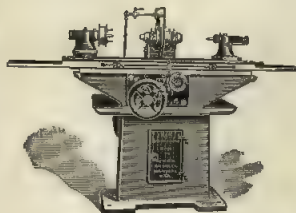
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Fulton Foundry & Machine Company,
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Iroquois Machine Co.

MANUFACTURE UNDER PATENTS

Improved Universal, Plain, Disc, Face, Surface
GRINDING MACHINES,



Wire Drawing Machinery,
Plain and Automatic Drop
Hammers,
Swaging Machines,
Rolling Mills,
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Office 150 Nassau Street,

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Now This Is A Proper Friction Counter-Shaft

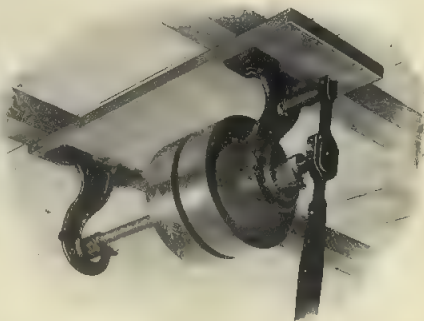
And
Here's
Why

The Wheaton Friction Counter-Shaft has, among other features, these: It is compact, occupying about one-third less space than others. It is strong, has about double the belt power and will reverse as quickly as the belt can take up the load; It is noiseless, can't be heard in operation a mile away; Is self-oiling, needs oil once a year, perhaps; It is clean, the oil stays where it's put and oils, no zone of grease the length of the shop; It is safe, has no bolt head, nuts, screws or any other projections to nip the unwary; Movement of the long end of shipper is about 15 inches; Has application wherever a counter can be used and will afford better satisfaction than any other made.

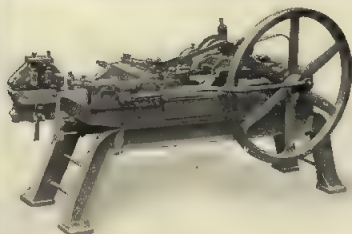
The Booklet details other features

Wheaton Machine Co.

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Modern Nail Making

Can be done only with such a
tool as the

CLEVELAND NAIL MACHINE.

Built in all standard sizes from
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"Our Name Guarantees Quality."

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Of Hack Saw Blades, those that are indifferent and the good ones bearing the trade mark of the West Haven Mfg. Co. and called the "Universal." The Universal Hack Saw Blades are proper blades, proper in material, proper in temper, proper in price.

We invite the details of your hack saw blade troubles and are pleased to suggest the remedy.



West Haven Mfg. Co.

New Haven, Conn.

The Fairbanks Co., 28-30 City Road, London, E. C.



Use Machine Handles.
Steel Ball Casters, T. Ball Casters, Tool Posts, Wheel Nuts, Washers and such like? Then you need our New Type of Machine Handles.

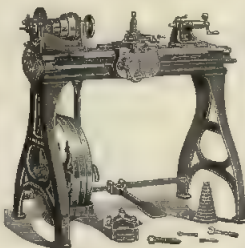
Northwood Machine & Mfg. Company,
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IF THE SAVING OF ONE OR TWO DOLLARS NOW AND THEN INTERESTS YOU



You might do well to investigate the merits claimed for the Emmert Universal Vises. The claims are: That they are better than any other vise made anywhere, and that they'll save their cost in time saved in a short time. The especially pleasing feature is their convenience, whereby it is possible to complete all vise operations at one locking of the work. This means much time saved which, in turn, stands for a positive cash gain. With your permission we shall be pleased to send testimony to the goodness of these vises and full details.

THE EMMERT MAN'G CO.,
WAYNESBORO, PA.



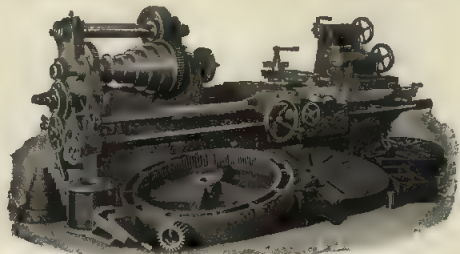
This cut represents our 10 in. and 12 in. Screw Cutting Foot Lathes,

designed for the use of amateurs. They are so well designed and so well made, however, that even in regular shop practice they give the best of satisfaction. At our prices they contain exceptional intrinsic value. Two decades of making and using have proved them. We have them in stock. Inquiries are welcomed.

We also manufacture a Standard Line of Engine Lathes 12 in. to 30 in. swing inclusive.

F. E. Reed Company, Worcester, Mass.

Our Agents: Manning, Maxwell & Moore, New York; Chicago, Cleveland, Pittsburgh; Carey, Mahoney & Sapp, N. C. Baltimore; Sells, Jr. & Son, N. Y.; Lima, Syracuse; Chas. Clark & Co., London; Van Der Schueren & Houtens, Rotterdam; Farnack, Trow & Co., Port.



Floor Space Cuts Quite a Figure

in most any manufacturing establishment, and especially in those that cannot be enlarged to meet new and greater requirements. That's another manufacturing problem that my New Heavy Pattern Double Spindle Lathe will help you to solve, because it gives you two complete, high-grade lathes on one base and doesn't take an inch more floor space than a common big lathe. My old lighter pattern is a general jobbing shop favorite, from Maine to California, and the new heavy pattern is fast gaining the same position in manufacturing of all sorts where there isn't enough heavy work to keep a battery of big lathes profitably employed, but where a portion of the product calls for a big swing and good work. A powerful 25-48 inch swing manufacturing lathe, with double the screw cutting capacity of any ordinary lathe, 2 1/2 inch hollow spindle and every other modern feature, at less than the cost of one big lathe, ought to be worth investigating, seems to me

J. J. McCABE, 14 Dey Street, New York.

FOREIGN AGENTS: Schuchardt & Söhne, Berlin; Vienna, Brüssel; St. Petersburg; Stockholm and Cologne. Also: Chas. Clark & Co., London; Birmingham, Manchester and Glasgow.

FOUNDRY LADLES.



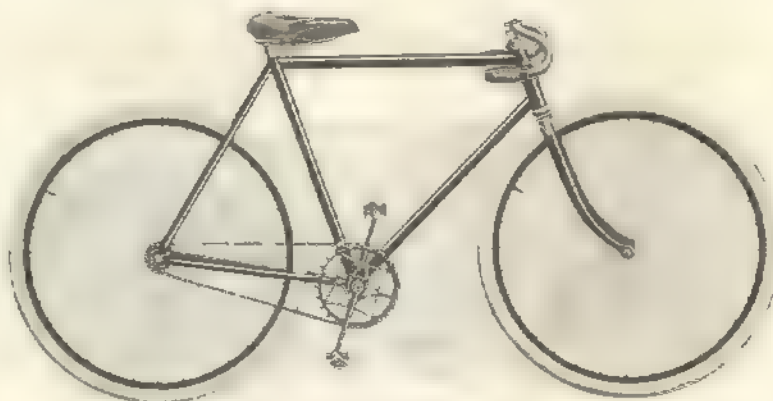
If you have not used our Stamped or Welded Steel
Bowl Ladles you are missing a good thing.

BYRAM & COMPANY, Inc.,

Ask for List at M. Iron Works, Foundry Outfitters, DETROIT, MICH., U. S. A.



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Newest and Latest
The Iver Johnson Truss Frame



(Frame Patented)

One Inch Tubing

Light in Weight But a Marvel
for Strength

A Rigid Crank Hanger Conducive to
Greater Speed

A Frame That Won't Buckle

The trade feels the need of something new and practical in cycle construction.
THE IVER JOHNSON TRUSS FRAME supplies that need.
The people want a change, so let it come by sending an

Iver Johnson Truss Frame
SUITABLE FOR TRACK OR ROAD USE.

"Honest Cycles for Honest Prices"

Send for Catalog; New Edition Now Ready

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FITCHBURG, MASS.

NEW YORK SALESROOMS: No. 99 Chambers Street


F-S

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**"Take the best French
type, simplify it, put
better material in
it, and you have a
SEARCHMONT"**

This agent's opinion is not a biased one. For his representative was sent to Paris to attend the automobile show for the purpose of investigating various motor vehicles and to select the best makes to sell in this country.

For further particulars about the finest gasoline automobile in the world, write to the

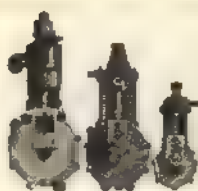
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PHILADELPHIA

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application.


F-S



PIONEER GASOLINE MOTORS

Guaranteed Horse Power and Workmanship

BICYCLE SIZE, $1\frac{1}{4}$ H.P., COMPLETE

\$30.00

Pioneer Motor and Cycle Co.

WILLIAM P. DUGAN

JERSEY CITY, N. J.

Simplicity Gas and Gasoline Engines



Two Horse Power

Delicate small engine for gas or gasoline. It is a true engine with no extra parts to get in the way. Very compact and simple at every point. Easy access to all parts and adjustment. A very fine engine for the money. It is a true engine with no extra parts to get in the way. Most economical power for the money. Fully guaranteed. Write us for a catalogue and let us quote you price.

J. KOWALSKY

32nd and Penn Avenue

Pittsburg, Pa.

STARR AUTOMOBILE BELLS

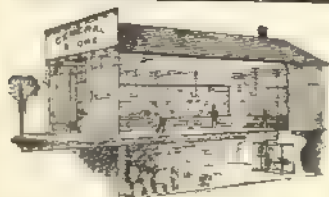
are unequalled for durability, tone quality,



excellence of finish and simplicity of mechanism. A thorough trial of our Bells will substantiate these claims, and you cannot afford to overlook our line when in the market. We invite your inquiry for

prices and catalog, and feel sure we can interest you.

STARR BROS. BELL CO. East Hampton, Conn.



CHAMPION OF ALL LIGHTING SYSTEMS

Most simple, most economical and most satisfactory lighting plant in the world. Shows a most artistic and lasting character. At automobile furnished in good appearance. Address

C. A. COEY & CO.

177 La Salle St.

Suite 17-19-22

CHICAGO, ILL.

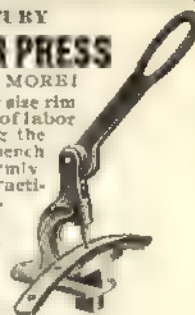
SAVE TIME, LABOR, MONEY AND RIMS!

THE 20TH CENTURY

NIPPLE WASHER PRESS

WILL DO THIS AND MORE!

SINKS washer into any size rim with minimum of labor required, without injuring the enamel, can be used on bench or vice; **WASHERS** firmly & evenly, properly imbedded.



Liberal Discount to Dealers.

**Singleton
Manufacturing Co.,**

MAKERS,

BROOKLYN, N. Y.

SINGLETON MFG. CO.
PAT. APPL. FOR.

MONEY IN MUSIC

Talking Machines are all the rage, and sell better than bicycles. They are not nearly so much trouble, either, and the profits are larger. You can start in the business without risking a dollar. Write us for our new wholesale proposition.

BARKELEW & KENT

G. A. Y. Tire Tape

Guaranteed not to dry out for one year

Massachusetts Chemical Company

(Walpole Rubber Works)

200 SUMMER STREET, BOSTON

THE KELSEY CO.

43 and 45 Niagara Street

BUFFALO, N. Y.

Largest and most complete Stock Bicycle Fittings and Sundries in New York State

Send for our 1902 Catalogue. Now ready.

THE DOW IS THE BEST BY EVERY TEST.



FOR PRICES AND PARTICULARS

WRITE TO

THE DOW PORT ELECT. CO.

218 TREMONT ST. BOSTON, MASS.

135 BROADWAY, N. Y.

19 LA SALLE ST. CHICAGO. - LIPPINCOTT BLDG. PHIL. PA.

POCKET KNIVES.

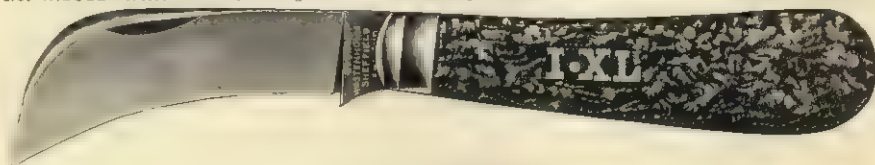
Illustrations Full Size



No. W/3081, WITTE'S PRIDE.
No. W/3081—Witte's Pride, Pruning Knives, 1 Blade, Iron Handles, ... Per Dozen, \$8 50



No. W/3011, WITTE'S PRIDE
No. W/3011—Witte's Pride, Pruning Knives, 1 Blade, Ebony Handles, ... Per Dozen, \$9 00



No. 14151, WOSTENHOLM.
No. 14151—Wostenholm's 1-XL, Pruning Knives, 1 Blade, Iron Handles, ... Per Dozen, \$ 9 00
No. 11950—Wostenholm's 1-XL, Pruning Knives, 1 Blade, Heavy Cocoa Handles, 4 1/4-inch, ... Per Dozen, 13 00



No. 7938, WOSTENHOLM.
No. 7938—Wostenholm's 1-XL, Pruning Knives, 1 Blade, Stag Handles, Square Capped, ... Per Dozen, \$15 00
Packed One-half Dozen in a box

POCKET KNIVES.

JOHN RUSSELL CUTLERY COMPANY.

Illustrations Full Size



No. 60, RUSSELL.

No. 60—Russell Barlows, Bone Handles, 1 Blade, Spear Points, Iron Lined,

Per Dozen, \$3 80

Packed One Dozen in a box.



No. 62, RUSSELL.

No. 62—Russell Barlows, Bone Handles, 2 Blades, Spear Points, Iron Lined,

Per Dozen, \$4 50

No. 66—Russell Barlows, Bone Handles, 2 Blades, Clip Points, Iron Lined,

Per Dozen, 4 50

No. 68—Russell Barlows, Bone Handles, 3 Blades, Razor Points, Iron Lined,

Per Dozen, 5 50

Packed One Dozen in a box.



No. 603, RUSSELL.

No. 603—Russell Barlows, Bone Handles, 1 Blade, Spey Point, Iron Lined,

Per Dozen, \$4 00

Packed One Dozen in a box.



No. 42, RUSSELL.

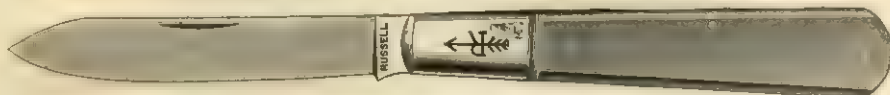
No. 42—Russell Barlows White Bone Handles, 2 Blades, Spear Points, Iron Lined,

Per Dozen, \$7 50

No. 062—Russell Barlows, Stag Handles, 2 Blades, Spear Points, Iron Lined,

Per Dozen, 7 50

Packed One Dozen in a box.



No. 601, RUSSELL.

No. 601—Russell Barlows, Bone Handles, 1 Blade, Spear Points, Iron Lined, 5-inch,

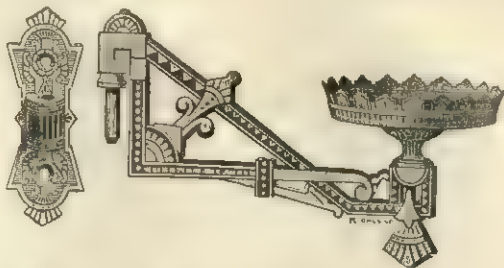
Per Dozen, \$6 00

No. 600—Russell Barlows, Bone Handles, 1 Blade, Clip Points, Iron Lined, 5-inch,

Per Dozen, 6 50

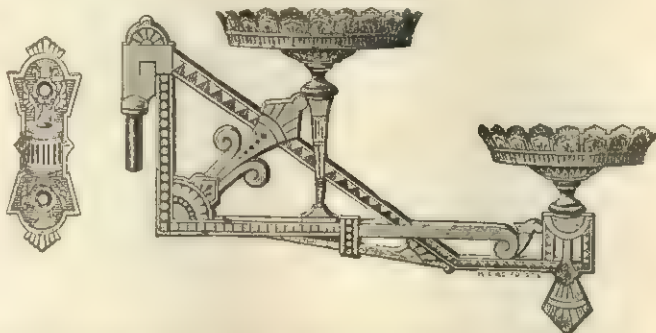
Packed One-half Dozen in a box.

FLOWER POT BRACKETS.



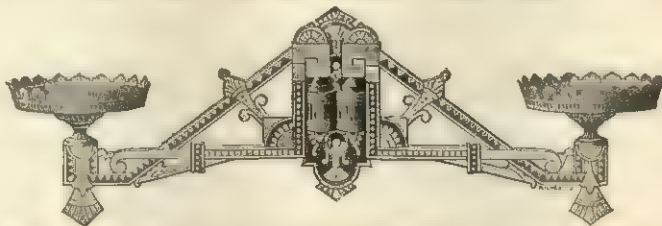
No. 310 6-inch Arm, One 5-inch Plate, Threaded, Kahala Bronze,
 No. 320 8-inch Arm, One 6-inch Plate, Threaded, Kahala Bronze,
 No. 330 10-inch Arm, One 6-inch Plate, Threaded, Kahala Bronze,

Per Dozen, \$3 00
 Per Dozen, 4 00
 Per Dozen, 5 00



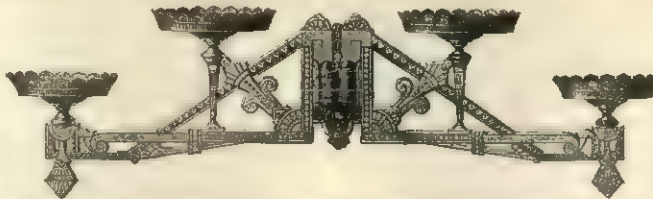
No. 340—12-inch Arm, One 5-inch Plate and One 6-inch Plate, Threaded, Kahala Bronze,

Per Dozen, \$5 75



No. 360—Double, Two 8-inch Arms, Two 6-inch Plates, Threaded, Kahala Bronze,

Per Dozen Sets, \$8 25



No. 390 Double, Two 12-inch Arms, Two 5-inch and Two 6-inch Plates, Threaded, Kahala Bronze,

Per Dozen Sets, \$13 00

Packed One-third Dozen in a box, with Screws.

LE PAGE'S LIQUID GLUE.



1 AND 2 OUNCE.

GLASS BOTTLES, WITH BRUSH.
FOR FAMILY USE.1-ounce Bottles, Per Dozen, \$1 20
2-ounce Bottles, Per Dozen, 1 80

Packed One Dozen in a box.

 $\frac{1}{2}$ AND 1 GILL.

PATENT TIN CANS, WITH BRUSH.

 $\frac{1}{8}$ -Gill Cans, . . . Per Dozen, \$1 80
1-Gill Cans, . . . Per Dozen, 2 40

Packed One Dozen in a box.

 $\frac{1}{2}$ PINT TO 1 GALLON.

$\frac{1}{2}$ -Pint,	Two Dozen in a case,	Per Dozen, \$ 3 35
1-Pint,	One Dozen in a case,	Per Dozen, 5 50
1-Quart,	One Dozen in a case,	Per Dozen, 9 50
$\frac{1}{2}$ -Gallon,	One-half Dozen in a case,	Per Dozen, 16 00
1-Gallon,	One-half Dozen in a case,	Per Dozen, 30 00

LE PAGE'S ASSORTMENTS.

Le Page's Assortment, Contains 2 Dozen 1-oz. Bottles, 1 Dozen $\frac{1}{8}$ -Gill Cans, and 1 Metal Display Stand with Colored Advertising Cards.
Per Assortment, \$4 20

LE PAGE'S MUCILAGE, GLUE AND PHOTO PASTE.



MUCILAGE.



GLUE IN TUBES.



PHOTO PASTE.

Le Page's Mucilage—2-oz. Cones, with Caps and Brushes, Per Dozen, \$0 80
Packed One Dozen in a box.Le Page's Liquid Glue in Tubes—Self Sealing, . . . Per Dozen, \$1 20
Packed Two Dozen in a box with Show Card, Each Tube in a carton.Photo Paste—2-ounce Bottles, . . . Per Dozen, \$0 60
Photo Paste—4-ounce Bottles, . . . Per Dozen, 1 20
Packed One Dozen in a box.

LEMON SQUEEZERS.



No. 1.

No. 1—Maplewood, Wood Ball, 2-inch Cup,
Per Dozen, \$1 00



PICNIC.

Picnic—Maple Handles, White Finish, Porcelain
Ball and Bowl, ... Per Dozen, \$1 75



No. 293.

No. 293—Boss, Tinned Iron, . . . Per Dozen, \$4 00
Packed One-half Dozen in a paper box.



No. 294.

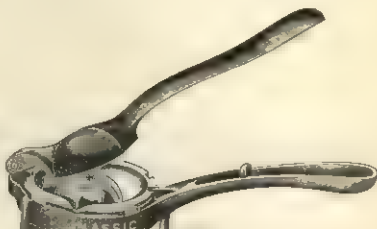
No. 294—Wallace, Tinned Iron, . . . Per Dozen, \$3 50
Packed One-half Dozen in a paper box.



No. 291.

No. 291—Model, Japanned Iron, with Glass Cup
Resting on Rubber Ring, . . . Per Dozen, \$7 00
Extra Glass Cups for above, . . . Per Dozen, 2 00

Packed One-half Dozen in a box.



No. 2, CLASSIC.

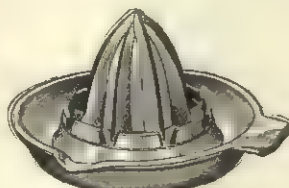
No. 2—Classic, Japanned Frame, Cast Aluminum
Cup, ... Per Dozen, \$4 50

LEMON DRILLS OR JUICE EXTRACTORS.



No. 1.

No. 1—Glass Lemon Drills, . . . Per Dozen, \$1 00



No. 3.

No. 3 Glass Lemon Drills, . . . Per Dozen, \$2 00

GLAZIERS' DIAMONDS.



Full Size Cut of No. 8/D.

No. 8/D—Universal Diamond, Ebony Handle, the most inexperienced hand can use it and do good work, . . . Per Dozen, \$80 00



No. 0/D—Key'd Diamond, Ebony Handle, for Single Thick Glass, . . . Per Dozen, \$60 00

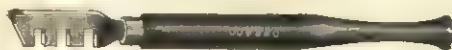


(Cut Shows No. 1/D.)

No. 1/D—Key'd Diamond, Patent Ebony Handle, for general use on Ordinary Glass, . . . Per Dozen, \$80 00

No. 7/D—Superior Key'd Diamond, Oakwood Handle, . . . Per Dozen, 120 00

GLASS CUTTERS.



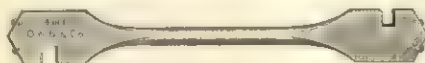
No. 1—Rosewood Handle, Nickel Plated, Notches Filled,

Per Dozen, \$2 50

No. 3—Imitation Rosewood Handle, Polished.

Per Dozen, \$1 50

Packed One Dozen in a box.



No. 18.

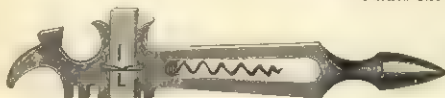
No. 18—Full Polished and Nickeled, Four Cutters, set ready for use, . . . Per Dozen, \$4 00



No. 8.

No. 8—Enameled Handle, Polished Head, . . . Per Dozen, \$1 50

Packed One Dozen in a box.



No. 12.

No. 12—Combination, Polished Head and Blade, Bronzed, Can Opener, Corkscrew, Knife Sharpener, Tack Hammer and Glass Cutter combined, . . . Per Dozen, \$1 50



No. 10

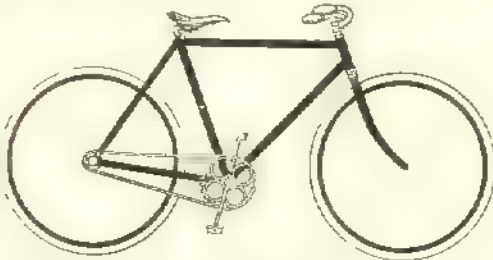
No. 10—Polished Head and Bronzed Blade, . . . Per Dozen, \$1 25

Packed One Dozen in a box.

For Glass Tube Cutters see Page 192.

KEIM'S 1902 MODEL BICYCLES.

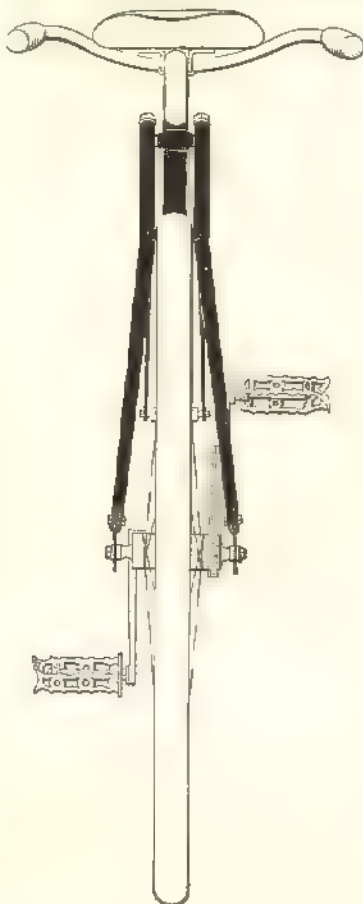
John R. Keim, Buffalo, N. Y., has just issued his 1902 bicycle announcement in the shape of a neat booklet descriptive of his line of LeRoy Bicycles.



Keim's Model No. 90, Spring Frame Bicycle

A very interesting section of the booklet is a description of the manufacture of bicycles as conducted at his factory, which shows that every care is taken to turn out a substantial as well as a well appearing article. Nearly every part of the wheel is made in his factory. Thus he is enabled to supply the very highest quality of parts and to maintain interchangeability.

His new spring frame bicycles are equipped with the Regas spring device. In these



Rear View of Keim's Spring Frame Bicycle.



Head and Fork of Keim Bicycles

wheels there is nothing intricate or complex to get out of order or break. In appearance they do not differ materially from the latest rigid frame models. They are easily adjusted and the man of 300 pounds weight will experience the same comfort as one of 150.

We illustrate Model No. 90 for men which is made in 20, 22 and 24 inch frames and costs at \$35. We also show rear view of this model. Model No. 91 for ladies is made in 21-inch frame and costs at \$25 also.

The head and forks of Keim bicycles are made with the single aim of providing strength where it is so vitally necessary. The cut clearly illustrates the construction of this part of the machine.

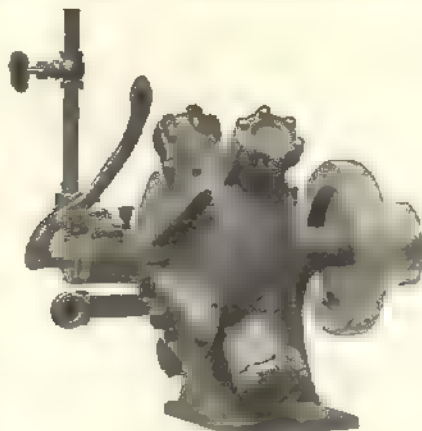
DIXON'S NO. 635 GRAPHITE FOR MOTOR CYCLES.

Dixon's No. 635 Graphite for motor cycles is a very finely powdered flake graphite, perfectly suitable for lubricating small engine motors. It is giving splendid satisfaction, and the manufacturers, Joseph Dixon Crucible Co., Jersey City, N. J., frequently receive complimentary letters in regard to this specialty. A user of No. 635 thus explains his method of using it:

"I have a small rubber hose or tube, the same as is used in atomizers. Into one end of the tube I force a quill—an ordinary toothpick quill—and by pushing the quill into the graphite two or three times the quill is easily filled. Then I unscrew the sparking plug of the engine and push the quill end of rubber tube through the expansion chamber down into the cylinder, having first put the piston head to its lowest point; then, putting the end of the tube in my mouth, with a light puff of air I discharge the graphite into the cylinder, which, being oily, gets an even deposit all over the bearing surface."

The makers will send a sample of No. 635 Graphite to any user of a motor cycle for the purpose of testing it.

The topic of "Motor Bicycles" drew a larger attendance to a recent meeting of the Cycle Engineers' Institute, of England, than had ever before been recorded.



1 to 15 H P
Larger sizes made to order.

down or stopped; variable cut off; always under the control of the operator

THE Leonard High Speed Multiple Cylinder Engine

Steam or Compressed Air
For light powers

Specially adapted to
Steam carriages and launches

No working parts exposed

Can be started at once, at any point, reversed in either direction at full speed, slowed

EDW. J. WISE, Sole Agent

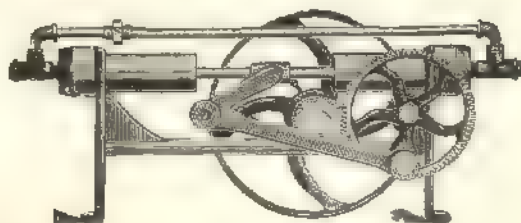
Exhibition Dept.

The Bourse, - Philadelphia, Pa.



FOUND!!

Power Pump, No. 3



A power air pump which every shop can afford and which none can afford to be without. Two brass cylinders, 1 1/2 inch stroke, brass valves, cut gears. Back geared 1 to 1 so that a 1 1/2 inch belt will drive it easily at 100 lb pressure to the square inch. Price only \$14.00; less 5 per cent for cash with order, f.o.b. cars New York City or Auburn, N.Y. We prefer to have you order through your jobber, but if he will not furnish, send direct to us. Electro and discount to jobbers. Five styles Power Air Pumps for all purposes, from \$14 to \$140.

STEVENS & CO.

99 Chambers Street

New York City, U. S. A.

LIBERTY No. 35-C.
Continuous Chime



HIGH
GRADE
BELLS

STANDARD No. 5-PL.
Continuous Chime



Original—Practical—Superb
Continuous—Ringing, No Winding

LIBERTY CHIMES

ANY DESIRED ALARM EASY TO OPERATE
THE LIBERTY BELL CO.

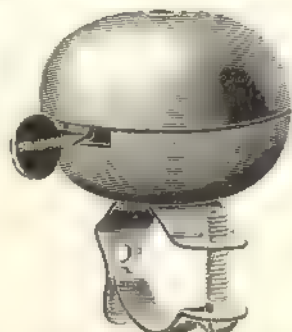
BRISTOL, CONN., U. S. A.

SOLE MANUFACTURERS



LIBERTY No. 5-WE.

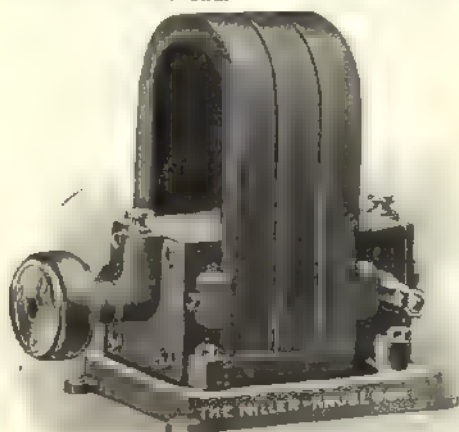
WANT
OUR
CATALOG?



STANDARD No. CYCO

MAGNETOS AND SPARK COILS OF HIGH EFFICIENCY.

The regularity of the spark is an important feature in the operation of gasoline engines. The means employed to produce the sparking are therefore deserving of careful attention. In this connection makers and users of gasoline engines will no doubt find it profitable to look into the merits of the Magneto generator and spark coil made by the Miller-Knoblock Electric Mfg Co., South Bend Ind.



Miller-Knoblock Magneto Generator.

In their No. 10 Magneto Generator the magnets are made of specially prepared magnet steel of high efficiency.

The armatures are wound with silk covered wire and are finished in a first-class manner. The core of the armature is of the best Norway iron. Will run in either direction.

Pulleys are interchangeable and guaranteed not to work loose on the shaft on account of vibration. Either friction or belted pulleys are furnished as desired.

The base is of solid brass, highly polished, attached to the magneto proper in such a manner as to hold the pulley against the fly wheel of the engine by means of a spring in connection with a screw.

Magneto weighs 14 pounds, is $8\frac{1}{2}$ inches long, 5 inches wide and $7\frac{1}{4}$ inches high.

Price \$15.00. Speed 2200 revolutions per minute. Voltage, 10 to 15; amperes, 4 to 6, varying as the speed varies.

The "Quick Action" spark coils are made to do efficient and reliable work. They are successfully used in connection with the No. 10 Magneto Generator or the various types of batteries.

They are so constructed that the core, which is made of soft Norway iron wire perfectly annealed, becomes quickly magnetized and demagnetized and will produce a strong "fat" spark at the right time, and the coil will not deteriorate after continued use.

These coils are given three coats of water proof preparation, which makes them as nearly water proof as it is possible to make a coil without enclosing it in a metal case.

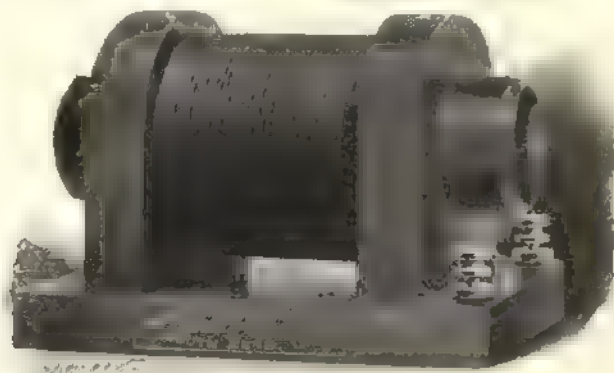
Dimensions, 7 inches long; $3\frac{1}{4}$ inches wide; $4\frac{1}{4}$ inches high; weight 7 pounds.

Price, \$2.00.

F. A. McFarland, the well-known racing man, is reported to have brought a 12 H. P. air-cooled De Dion Motor with him from France. He says the building of such a large size air-cooled motor is made possible by the use of a secret composition metal that cools rapidly for the time.

The South Carolina & West Indian Exposition, Charleston, S. C., December 1, 1901, to June 1, 1902, has provided an automobile speedway and track, running the entire length of the grounds. The Exposition Co. desires to arrange for a line of automobiles to run on this speedway, and also for a line from the city to the Exposition grounds.

The J. Stevens Arms & Tool Co., Chicopee Falls, Mass., have leased the building formerly occupied by the American Bk. Co. at that town, and have added it to their already large plant. Mr. I. H. Page, president of the Company, has succeeded in making arrangements whereby the shipment of freight from Chicopee Falls to Western points will be greatly facilitated.

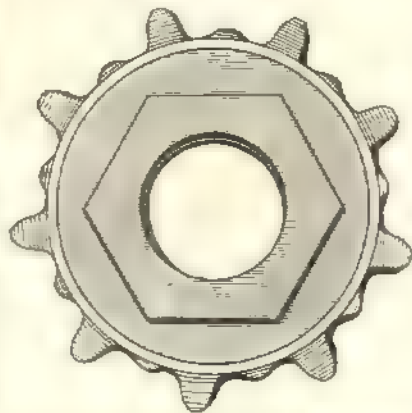


The "Quick Action" Spark Coil.

SOMETHING NEW

Little Giant Coaster and Duck Brake

For MOTOR CYCLES and BICYCLES



9-Tooth Coaster-- Simple, neat and effective. Fits any wheel. List \$4.50. Liberal trade discounts. **Special** introductory cash orders for February only \$2.25 to dealers. Write for catalog.

GEORGE H. HAMMOND & CO.

2500 MADISON STREET

MINNEAPOLIS, MINN.

Salesmen are now out
with line of samples of

READING

STANDARD

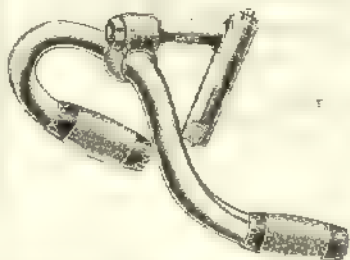
BICYCLES

for 1902

Wait for them or write for Catalogue and Prices

Reading Standard M'f'g Co.

Reading, Pa.



THE "HUSSEY" FORWARD Extension Handle Bar

We prophesied would be the Success of 1901. Our prophesies were more than fulfilled. Our Success was measured by our Liquidity.

WE HAVE DOUBLED OUR FACILITIES
NEW SHAPES NEW FEATURES

THE
Snell Cycle Fittings Co.
BRANCHES TOLEDO, O.
NEW YORK AND BOSTON

C. B. BARKER & CO. Ltd. 93 Reade St.
New York City



Bicycle and Automobile Sundries
Bicycle Fittings and Parts
Novelties, Tools and Specialties

The Barker Stripped Bicycles

A standard line of Wheels at attractive prices

1902 Catalogue ready in January
Send for copy

The Success of the "Yale" on the Track

was duplicated on the road. 1901 was our Banner year. Don't you want a share of our prosperity?

ALL NEW MODELS

THE KIRK MANUFACTURING CO.

TOLEDO, OHIO

BRANCHES : 167 Oliver St., Boston. 83 Chambers St., New York.

TABLE KETTLES AND STANDS.



No. 1454.

No. 1454 Table Kettles and Stands, Polished Copper Kettles, Stands and Lamps, Tilting Kettles, Capacity 2½ pints, Asbestos Force-Draught Lamps. Each, \$10 00



No. 1664.

No. 1664—Table Kettles and Stands, Capacity 2½ pints, Polished Copper Kettles and Lamps, Wrought Iron Stands, Asbestos Force-Draught Lamps, Each, \$5 00



Nos. 2560 AND 2564.

No. 2560—Table Kettles and Stands, Polished Brass Kettles and Lamps, Wrought Iron Stands, Capacity 2½ pints, Asbestos Force-Draught Lamps, Each, \$5 00

No. 2564—Table Kettles and Stands, Polished Copper Kettles and Lamps, Wrought Iron Stands, Capacity 2½ pints, Asbestos Force-Draught Lamps, Each, 5 50

ALCOHOL FLAGONS.



No. 62.

No. 62 Alcohol Flagons, Nickel Plated, Capacity 1 pint, Press Knob for Vent, Each, \$3 50

ALCOHOL STOVES.



No. 9.

No. 9—Little Traveler Alcohol Stoves, Nickel-plated White, 1 pint Boilers, all Parts Neat in Boilers, Per Dozen, \$9 00




"ABC"

Volume Blowers and Exhausters. Reversible and Interchangeable.



The man who gives his thoughts and attention to buying must first investigate. If you are not thoroughly familiar with the enviable reputation of "ABC" Volume Blowers and Exhausters, why not investigate? Send for Catalog 112-D.

AMERICAN BLOWER COMPANY,
Detroit, Michigan.

NEW YORK. CHICAGO. LONDON.

The Johnson Safety Split Collar



Saves the trouble of taking down pulleys and bearings in order to put a collar on shaft, and only takes a few minutes to attach. It is made in halves as shown, the halves are united by a hinged joint. When in position, the halves are held together by a set screw. The whole thing is fastened to the shaft by another set screw. These set screws are in recessed spaces so that head comes flush with outer surface. No chance for anything to be caught. Can be put onto shafts in spaces of its own width without moving anything. If you'd rather have a solid collar, the Johnson Solid Collar will meet the need. Sold by leading dealers in all of the principal cities of the United States.

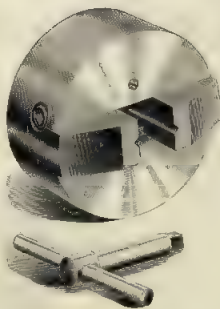
Patterson, Gottfried & Hunter, Ltd.,

Machinery, Metals, Hardware, Tools, Supplies,

146-150 Centre St., cor. Walker, New York City.

A Two Jawed Chuck

with hardened steel thrust shoulders for retaining screws in place and for receiving wear, and which allows the screw threads to extend fully to the outside of chuck, giving the jaws greater traverse and increasing the safe capacity of the chuck as compared with other chucks of a similar size. May be taken apart for cleaning when necessary without everything falling to pieces. Other chucks, all kinds, for all purposes.



D. E. Whiton Machine Co.
NEW LONDON, CONN.

SOLE EUROPEAN AGENTS—Selig, Sennenthal & Co.
SOLE GERMAN AGENT—E. Sennenthal, Jr.

THE BEST OF THEIR KIND



PUNCHING,
SHEARING,
BENDING,
RIVETING,
TIRE
WELDING
MACHINES
—MADE BY—

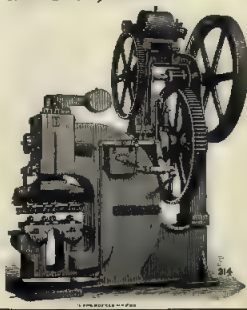
The Long & Allstatter Co.,
HAMILTON, OHIO.

OVER
950
SIZES
AND
KINDS.

BELT,
STEAM
AND
ELECTRIC-
ALLY
DRIVEN.

WRITE
FOR
CATALOG.

CORRES-
PONDENCE
SOLICITED.





Presses
Dies
Special
Machinery
For
Sheet Metal
Work
Full
Line of
Patented
Can
Making
Machinery
Designers and Builders

of any kind of Special Machines
TORRIS WOLD & CO.
66-70 N. Jefferson St., Cor. Fulton St
CHICAGO, ILL., U. S. A.

Tell Pearson You'd Like to Know

Just why the Screw Machines he blows so much about are better than other screw machines, and just how they're going to help you to more cash. That's what you're interested in, isn't it? Eight sizes. Postal brings particulars.

The Pearson Machine Co.,

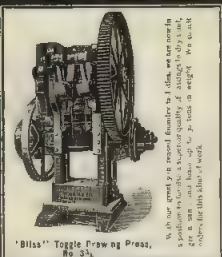
37 W. Randolph St.,
CHICAGO, ILL., U. S. A.

E. W. BLISS CO.

1 ADAMS STREET, BROOKLYN, N. Y.

Western offices: 29 South Canal St., Chicago, Ill. European Office: 14 Avenue de la Grande Armée, Paris, France. 14 Viale Marconi Milan, Italy. London Agency: The Phoenix & Co. Ltd., New Road, Wandsworth Road, S.W. Schuchardt & Co. to Berlin, Vienna, St. Petersburg, Stockholm and Copenhagen.

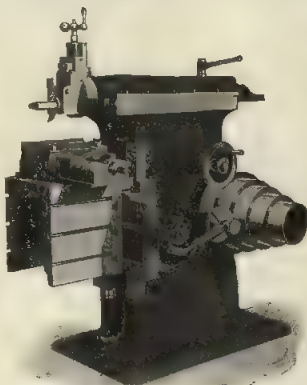
ALSO OWNERS OF
THE STILES & PARKER PRESS CO.



'Bliss' Toggle Drawing Press,
No. 3 1/2.

DESIGNERS AND BUILDERS OF
PRESSES, DIES, SHEARS
DROP HAMMERS AND SPECIAL MACHINERY
FOR SHEET METAL WORK

Elliptical Gear Crank Shapers.



The only Crank Shaper which has a uniform cutting speed of tool.

The only Crank Shaper which has a uniform quick return on all strokes, whether long or short.

The only Crank Shaper which has a five step cone of large diameter.

The only Crank Shaper which has a back gear that can be thrown in and cut quickly like a lathe gear



These and many other points of merit make the

**Walcott
Elliptical Crank Shaper**

THE BEST TO BUY.

GEO. D. WALCOTT & SON, JACKSON, MICH., U.S.A.

Our Tool can be seen at the establishments of Buck & Hickman, London, England; Fenwick Press & Co., Paris; Barrie, McDowell, Stoddard & Co., Chicago, Ill.; Montgomery & Co., 103 Fulton Street, New York City; Strong, Carter & Hammond Co., Cleveland, O.

THE PAXSON-WARREN SAND BLAST SYSTEM

PATENTED.

FOR Cleaning Castings,
Removing Paint and Scale from Metals,
Frosting Metals, etc.

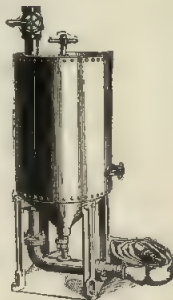
Operated by compressed air at a pressure varying from 10 to 80 lbs. The **Exhaust System** used in connection with this device draws the dust from operating room to the washer where it passes through a spray of water and settles to bottom of washer as mud.

CORRESPONDENCE SOLICITED.

Our Foundry Supplies and
Equipment are made by us.

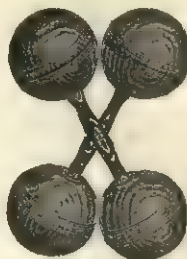
ASK FOR CATALOG No. 11 A.

J. W. PAXSON CO.
PHILADELPHIA, PA., U. S. A.



INDIAN CLUBS AND DUMB BELLS.

MAPLE DUMB BELLS.



DUMB BELLS, MAPLEWOOD, POLISHED.

No. 40--Weight, each, pounds,	1	1 1/2	2	3	4
Per Pair,	\$0.35	.36	.40	.46	.50

INDIAN CLUBS.



MAPLE.

INDIAN CLUBS, MAPLEWOOD, POLISHED.

No. 20--Weight, each, pounds,	1	1 1/2	2
Per Pair,	\$0.30	.36	.40
Weight, each, pounds,	2 1/2	3	4
Per Pair,	\$0.60	.70	.96

DUMB BELLS.



IRON.

No. 50--Dumb Bells, Japanned Iron, 1 to 50 pounds each, ... Per Pound, \$0 08

No. 51--Iron Dumb Bells, Full Polished and Nickel-Plated; weight, 1 to 10 pounds, Per Pound, 16

No. 52--Iron Dumb Bells, Full Polished and Nickel-Plated, with Heavy Rubber Bands, Weight, each, pounds, 1 2 3 4 5
Per Pair, . . . \$1 00 1 20 1 60 1 80 2 10

HEXAGON DUMB-BELLS.

WILL NOT ROLL.



No. 13--Wrought Iron Handles,	Per Pound, \$0 11
No. 14--Hickory (wood) Handles,	" 0 18
No. 15--All Cast Iron,	" 0 09

Extra heavy dumb bells made to order.



EBONITE.

INDIAN CLUBS, EBONITE, POLISHED.

No. 30 Weight, each, pounds,	1	1 1/2
Per Pair,	\$0.65	.80
Weight, each, pounds,	2	3
Per Pair,	\$1.10	1.25

INDIAN CLUB HANGERS.



No. 70--Indian Club Hangers, Malleable Iron, Japanned, ... Per Pair, \$0 25
Indispensable to owners of Indian Clubs or Dumb Bells.

ATHLETIC GOODS.

QUOITS.



No. 60—Quoits, Japanned, Sizes, each, 14, 24, 34
pounds, ... Per Pound, \$0 08

JUMP STANDARDS.

(Patented.)



No. 25—These Jump Standards have no notches, no loose pins to get lost; can be raised to twelve feet high. They are graduated to inches, but can be set at any height, as the support for the cross-bar or rope is clamped to the posts. The Standards are only seven feet high in shipping, Per Pair, \$15 00

SPRUCE PINE VAULTING POLES.

These Vaulting Poles are made of selected straight grained spruce pine, brought in from the State of Washington, especially for this purpose. They are planed by hand to correct size and shape, and very light in weight.

No. 200—8 feet long,	Each, \$3 25
No. 201—10 feet long,	" 4 00
No. 202—12 feet long,	" 5 00
No. 203—14 feet long,	" 5 50
No. 204—16 feet long,	" 6 50

SHOT.



No. 28—12 pound iron,	Each, \$1 10
No. 29—12 pound lead,	" 3 85
No. 30—16 pound iron,	" 1 35
No. 31—16 pound lead,	" 5 50
No. 23—35 pound iron,	" 6 25

DISCUS.



No. 14—Regulation, made of malleable iron, accurate in size, weight and design, Each, \$2 20
No. 15—Grecian Discus, an exact reproduction of those used in the Olympian Games at Athens. Guaranteed correct, Each, \$7 00

STEEL HANDLE THROWING HAMMERS.



No. 19—12 pound iron ball,	Each, \$3 50
No. 20—12 pound lead ball,	" 4 80
No. 21—16 pound iron ball,	" 3 60
No. 22—16 pound lead ball,	" 5 50
No. 23—Extra steel handles,	" 2 20

Exact weight guaranteed. Handles made of crucible spring Steel.

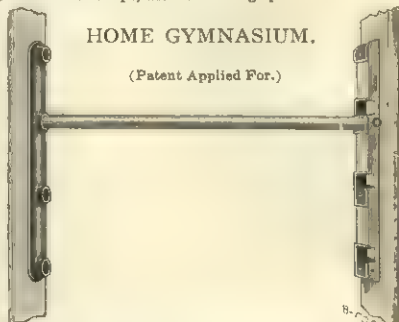
FLEXIBLE HANDLE HAMMERS.

No. 24—12 pound iron ball,	Each, \$3 50
No. 25—12 pound lead ball,	" 4 80
No. 26—16 pound iron ball,	" 3 60
No. 27—16 pound lead ball,	" 5 50
No. 208—Extra Wire Rope Handle,	" 2 20

Exact weight guaranteed. Handles made of flexible galvanized wire rope, with two brass grips.

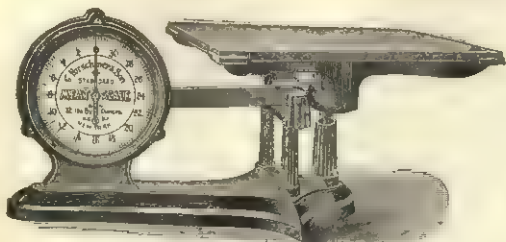
HOME GYMNASIUM.

(Patent Applied For.)



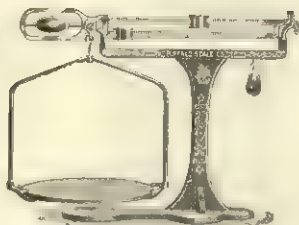
No. 17—A horizontal Bar, to be fastened between the door frame, brings that apparatus right into your bed-room. A child three years of age can put the bar in place and remove it. The pieces fastened on the door are very neat castings. Price complete, \$2 40
Give width between the door frame when ordering.

SCALES.



STANDARD MEAT SCALE

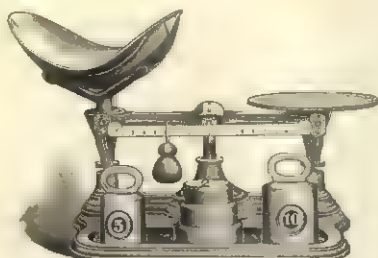
No. 370 Standard Meat Scales, 32 lbs. x 1 oz.,
6-inch Sash, Double Dials, Marble Slab,
11 $\frac{1}{2}$ x 14 $\frac{1}{2}$ inches, each, \$12 50
Weight 45 Pounds.



BOSTON MARKET SCALE.

MARBLE SLAB, BRIGHT VERMILION, FANCY FINISH, DOUBLE
BEAM, MARBLE SLAB EITHER DARK OR LIGHT; BEAM,
POISES AND BOWS BRASS NICKEL PLATED.

	Capacity.	Slab.	Each.
No. 680—	30 lbs. x 1 oz.	15 inches diameter.	\$24 00
No. 682—	60 lbs. x 1 oz.	15 inches diameter.	25 00
Additional for Full Agate Bearings,			5 00
Shipping Weight Each 90 Pounds.			



AGATE-BEARING EVEN BALANCE SCALE.

FULL JEWELLED, ALL BEARINGS BEING OF THE FINEST GER-
MAN AGATE; IRON WORK FINISHED IN GOLD BRONZE;
SCOOP, SHIELD, PLATE, SIDE BEAM AND PIVOT CAPS ARE
OF BRASS, NICKEL PLATED; RUBBER-TIPPED, NICKEL-
PLATED SCOOP FORK AND NICKEL-PLATED WEIGHTS;
WITH OR WITHOUT SIDE BEAMS, ALSO WITH SUGAR PAN
OR PORCELAIN SLAB INSTEAD OF REGULAR SCOOP.

	Capacity.	Weight Each.	Each.
No. 514—	$\frac{1}{2}$ oz. to 8 lbs., without Side Beam,	40	\$
No. 516—	$\frac{1}{2}$ oz. to 8 lbs., with Side Beam,	40	
No. 520—	$\frac{1}{2}$ oz. to 16 lbs., without Side Beam,	50	
No. 528—	$\frac{1}{2}$ oz. to 16 lbs., with Side Beam,	50	
No. 538—	$\frac{1}{2}$ oz. to 20 lbs., without Side Beam,	60	
No. 540—	$\frac{1}{2}$ oz. to 20 lbs., with Side Beam,	60	



IMPROVED EVEN-BALANCE SCALE.

BRASS SIDE BEAM, EXTRA FINISH, BLACK AND GOLD.

WEIGHTS COMPLETE

	Capacity.	Scoop.	Weight Each.	Each.
No. 632—	$\frac{1}{2}$ oz. to 4 lbs., Tin, seamless,	25	\$	6 00
No. 634—	$\frac{1}{2}$ oz. to 4 lbs., Brass, seamless,	25		6 75
No. 636—	$\frac{1}{2}$ oz. to 8 lbs., Tin, seamless,	30		7 00
No. 638—	$\frac{1}{2}$ oz. to 8 lbs., Brass, seamless,	30		7 75
No. 640—	$\frac{1}{2}$ oz. to 16 lbs., Tin, seamless,	60		10 00
No. 642—	$\frac{1}{2}$ oz. to 16 lbs., Brass, seamless,	60		11 00



CANDY SCALES

NO LOOSE WEIGHTS ARE REQUIRED WITH THESE SCALES. HANDSOMELY FINISHED IN BLACK AND GOLD, THE TWO AND FOUR-
POUND SIZES ARE FURNISHED WITH ROUND PATTERN CANDY SCOOPS, THE FOUR-POUND SIZE HAS DOUBLE BEAM.

Candy Scales,	No.	Capacity.	Each.
	696	$\frac{1}{2}$ oz. to 4 lbs.	\$10.00
	697	$\frac{1}{2}$ oz. to 2 lbs.	8.00
	698	$\frac{1}{2}$ oz. to 1 lb.	4.50
	699	Nickel Plated, $\frac{1}{2}$ oz. to 1 lb.	6.00

Shipping Weight Each 15 Pounds.

SCALES.



UNION SCALE

PLATFORM 10x13 $\frac{1}{2}$ INCHES. WEIGHS FROM $\frac{1}{4}$ OZ. TO 32 LBS.
IN SCOOP, AND TO 245 LBS. ON PLATFORM.

WITH SINGLE BEAM.

	Capacity.	Scoop.	Each.
No. 768	$\frac{1}{4}$ oz. to 245 lbs.	Tin, seamless,	\$14 00
No. 770	$\frac{1}{4}$ oz. to 245 lbs.	Brass, seamless,	15 00

WITH DOUBLE BEAM.

No. 772	$\frac{1}{4}$ oz. to 245 lbs.	Tin, seamless,	\$15 00
No. 774	$\frac{1}{4}$ oz. to 245 lbs.	Brass, seamless,	10 00

Shipping Weight Each 60 Pounds.



UNION SCALE, WITH TWO PLATFORMS.

PLATFORM 10x13 $\frac{1}{2}$ INCHES. WEIGHS FROM $\frac{1}{4}$ OZ. TO 32 LBS.
IN SCOOP, AND TO 245 LBS. ON PLATFORM.

WITH SINGLE BEAM.

	Capacity.	Scoop.	Each.
No. 776	$\frac{1}{4}$ oz. to 245 lbs.	Tin, seamless,	14 50
No. 778	$\frac{1}{4}$ oz. to 245 lbs.	Brass, seamless,	15 50

WITH DOUBLE BEAM.

No. 780	$\frac{1}{4}$ oz. to 245 lbs.	Tin, seamless,	\$15 00
No. 782	$\frac{1}{4}$ oz. to 245 lbs.	Brass, seamless,	16 00

Shipping Weight Each 60 Pounds.



GROCERS' UNION SCALE.

W. H. CO. "IXL."

W. H. Co. "IXL" Union—Capacity $\frac{1}{4}$ oz. to 244
lbs., Finished in Red Enamel and Gold, Tin
Scoop, Sliding Poise, Nickel Plated Brass
Beam. Each, \$10 00

Shipping Weight Each 60 Pounds.

LYON'S.

No. 1 Lyon's Union, Ornamented, Tin Scoop, Brass
Beam, Steel Bearings, Capacity $\frac{1}{4}$ oz. to 244
lbs., ... Each, \$8 00



MEAT AND BUTTER SCALE

FINISHED IN BLACK AND GOLD, THE TWO LARGER SIZES HAVE MARBLE SLABS AND THE SMALL SIZE IS FURNISHED WITH A
PORCELAIN PLATE.

Nos.	664	666	668	670	672	674
Capacity.	$\frac{1}{4}$ oz. to 62 lbs.	$\frac{1}{4}$ oz. to 62 lbs.	$\frac{1}{4}$ oz. to 32 lbs.	$\frac{1}{4}$ oz. to 32 lbs.	$\frac{1}{4}$ oz. to 10 lbs.	$\frac{1}{4}$ oz. to 10 lbs.
Slab, inches.	10 x 13	10 x 13	10 x 13	10 x 13	10 x 10	10 x 10
Beam.	Single.	Double.	Single.	Double.	Single.	Double.
Weight, each.	70	70	55	55	50	50
Each.	\$12.75	13.75	10.50	11.50	9.50	10.50

Equipped with Agate Bearings, \$4.00 Additional.

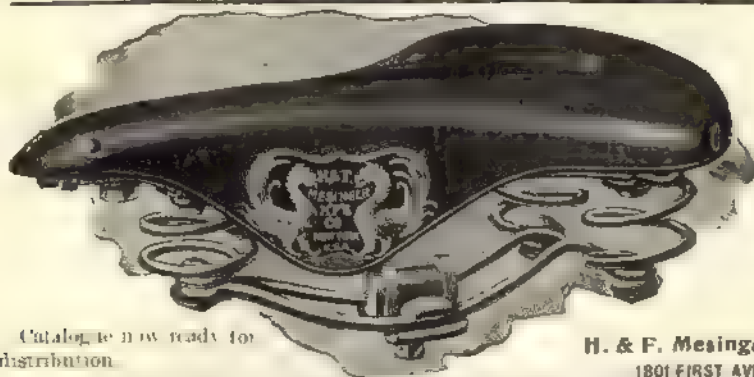
Don't Throw the Old Tires Away!

Use Anti-puncture Fluid, for punctures, and for porous pneumatic tires. It prevents punctures, and preserves the tires. Used in automobiles, road wagons and bicycles. Satisfaction guaranteed. Patented April 11, 1901. Agents wanted.

PARTICULARS AND TERMS FURNISHED ON APPLICATION.

ANTI-PUNCTURE FLUID COMPANY

HORNELLVILLE, N. Y.



We are the only Saddle Manufacturer who carry a full line of Saddles. We also make sewed leather Grips.

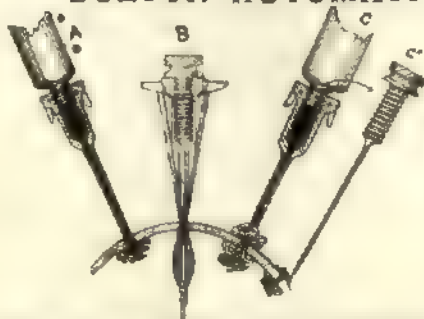
Catalogue now ready for distribution.

H. & F. Mesinger Mfg. Co.

1801 FIRST AVE. NEW YORK

BOLTON AUTOMATIC QUICK REPAIR TOOL

PAT. SEPT. 10, 1901



1—Cement can first be injected into tire. 2—Bands can be securely wedged into tire. 3—Cement can again be injected, when hole is literally plugged thus covering and saturating bands. C—Needle part of tool, which forms a ready and efficient means for keeping the tool free from cement and dirt.

Can be used successfully on BICYCLE, SULKY or MOTOR VEHICLE TIRES. Any size band can be used.

An impossibility to withdraw Bands with Tool.

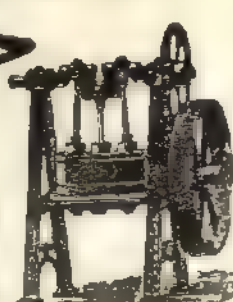
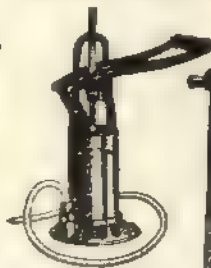
Postpaid, 25 cents

UNION MANUFACTURING & SPECIALTY CO., 506-508 Genesee St., Buffalo, N. Y.

Foot Horn

PRICE \$12.00 COMPLETE
— \$6.00 PUMP ONLY

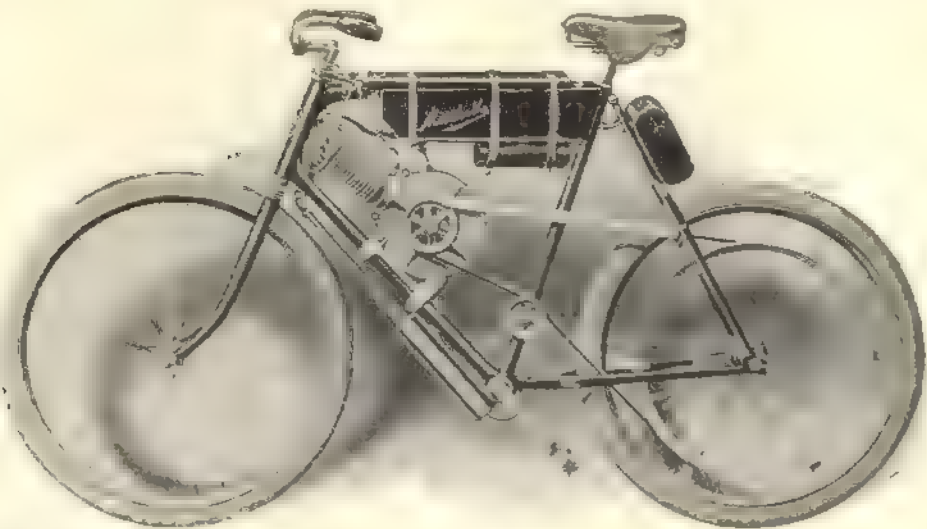
PAT APPLIED FOR
N9225.



HAND AND POWER PUMPS

FOR BICYCLES AND AUTOMOBILES

GLEASON-PETERS AIR PUMP CO., Houston and Mercer Sts., New York



The Mitchell Motorcycle

has, by merit, earned the

REPUTATION

of being the BEST DESIGNED, FINEST FINISHED and MOST SPEEDY. It wins its way into popularity because it gives satisfaction.

AGENTS TAKE NOTICE

Stock will be carried in both Boston and New York for the convenience of Eastern trade. We appoint but one agent in a city, but that one must be a hustler. Are you? If so, write to-day, or the other man will get in ahead of you, and then you will have to look out for real competition. Address

WISCONSIN WHEEL WORKS CO.

12 MITCHELL STREET

RACINE, WIS.

OR

H. VAN ARSDALE

GEO. S. ATWATER

20 BROAD STREET

No. 8 MERRIMAC STREET

NEW YORK CITY

BOSTON, MASS.

Gen. Agt. N. Y., Pa., N. J., Del., and D. C.

Gen. Agt. New England

cessity of delicate parts, and insures long life to the valve as well as to the coupling.

There is nothing about the "Perfect" coupling to suggest a toy, as all the parts are heavy and well proportioned. In fact, the whole contrivance is as substantial as the conditions demand.

It is one of those small sundries that should be in the hands of every manufacturer, jobber and dealer as well as storage and repair stations.

All couplings are turned from solid brass, and guaranteed accurate. Price is 50 cents.

DYKE'S 6 H. P. ENGINE, CIRCULATING PUMP, RADIATING DISKS AND HEADERS

A. L. Dyke, Innmar Building, St. Louis, Mo., has recently issued a number of new circulars describing and illustrating some of his later productions.

Dyke's No. 1 A 6 H. P. vertical engine has cylinder and head in one piece. It is a single cylinder, four-cycle motor, with jump-spark ignition, variable igniter. It is water-

large that the metal would not flow if they were cast with the cylinders. They are made of malleable iron to insure against breakage. A series of holes of varying shapes are left in them, which act as air flues when the complete casting is finished and assist very materially in the cooling. They have a large trade in this line, also in castings for water-cooled motors, and the quality of their work can be judged by the following testimonial.

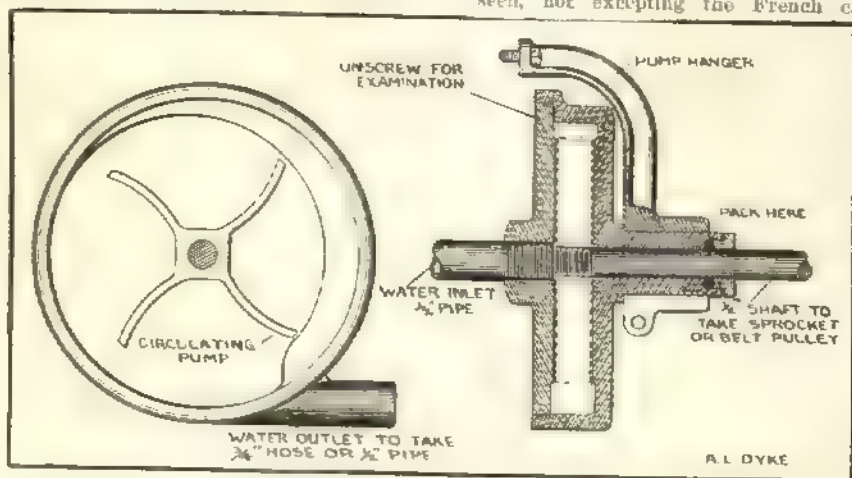
November 19, 1901

Messrs. Hopson & Chapin Manufacturing Co., New London, Conn.

Gentlemen: Enclosed find check for \$19.85, being the amount of your bill, less 2 per cent. discount.

I wish to thank you for the promptness in which you executed the order. Although I was unable to get the machine ready for the race Saturday, it was on account of failure by others to complete some of the work.

The castings are as fine as any I have seen, not excepting the French castings.



Dyke's New Circulating Pump

cooled. Sun and planet type of transmission is used with direct connection to engine shaft. It is intended to be placed in front and is used in the Tonnetto advertised on page 71 of our January issue. It is sold complete with all accessories for \$225.

Dyke's circulating pump is a new device just put on the market. This pump is quite an improvement over previous models, owing to the absence of packing and its simplicity. The hanging arrangement is also an improvement.

HOPSON & CHAPIN'S SPECIAL DESIGN CYLINDER CASTING.

Hopson & Chapin Co. have a special design of cylinder casting for air-cooled motors which gives very much more surface and presents several improved features over any others on the market. The ribs are cast first and separate and are very thin. Then they are set in the mould and cast with the cylinder. They are so high and

which I thought could not be equaled in the United States.

Yours very truly,

CHAS. H. METZ

INTERRUPTED STUNTS.

The Miami Cycle and Manufacturing Co. Middletown, Ohio, makers of the Racycle, have just issued a booklet entitled "Interrupted Stunts," which although very amusing is also instructive. It purports to be a letter or series of letters from Jack, who is very busy and often interrupted, to his friend, Algie. It is a very interesting bit of bicycle literature.

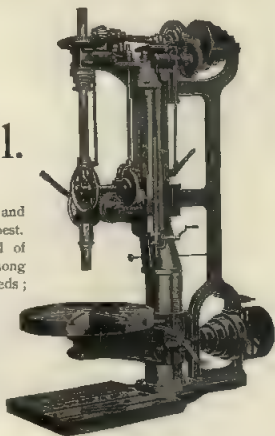
C. M. RICE CO. IN NEW QUARTERS.

After February 1 C. M. Rice Co., heretofore located at 105 Chambers street, New York city, will occupy the store at 26 West Broadway same city.

In addition they will shortly add a line of motor cycle parts to their old lines.

The "New Haven" Upright Drill.

A drill of sterling worth, the product of a shop with a known and acknowledged reputation for producing nothing but the best. Made on honor and to squarely meet a demand for a drill of extreme convenience, great rapidity and of rare accuracy. Among the good features of this drill are: It has hand or power feeds; automatic stop; quick return; index for measuring depth of drilled hole; spindle is in balance; head is quickly adjusted by screw and mitre gears; table can be swung aside so that large work may be handled on bed plate; back gear is thrown in or out by a single movement of lever. There are other details which are described in our little book, which we are pleased to send.



New Haven Mfg. Co., - Mfrs. of Lathes, Planers, Slotters, Etc.,
NEW HAVEN, - - - - - CONN.



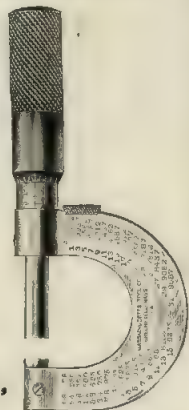
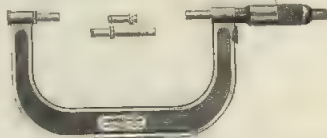
Shows a Line of

Our New Catalog No. 3

Fine Precision Tools

Comprising many new ideas and designs as well as the regular standard machinists' tools. We would like to send every one interested a copy. A post card with your address is all that is necessary.

The Tools
are Right, so are
the Prices.



Massachusetts Tool Company,

Box 322. Greenfield, Mass., U.S.A.

**THE BEST WHEELS for**

TOOL GRINDING AND
GENERAL MACHINE SHOP USE—
SURFACE GRINDING—SAW SHARPENING—
KNIFE SHARPENING AND
WOODWORKING TOOLS—
GRINDING CASTINGS OF ALL KINDS—
ALL FORMS OF CYLINDRICAL GRINDING,
INTERNAL AND EXTERNAL

**NORTON EMERY WHEEL CO.**

Office and Works at WORCESTER, MASS.

Chicago Store—25 So. Canal St.

Agencies—"All over the World"

NORTON EMERY WHEEL MACHINERY

FOR
Machinists' and
Wood-Working
Tools



FOR BENCH AND FLOOR
LATEST AND BEST

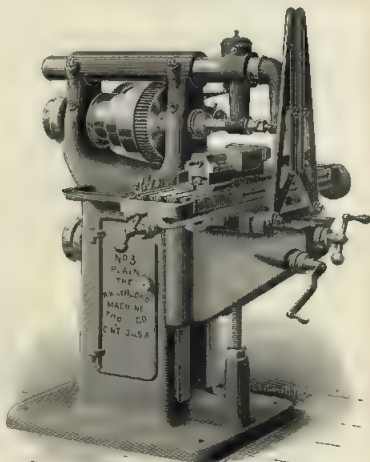
Complete Illustrated
Catalogue Free

If You've The Shop Room

And the work for a good Plain Miller that's a money maker, you'd better get one of our No. 3's about as soon as you can. Better make the room for a No. 3 if you have to oust one of your old millers to do it, just because this tool will pay a better rental for the floor space it occupies. You see, a LeBlond Miller cuts both ways—it not only increases your milling capacity, but it does its work in such a way as to bring you more work. Of course, that's a general statement that anybody can make, but we're right behind it with the definite details that go far toward confirming it, and we'll produce proof for possible customers. Let us send you the details, at least; then come at us with hard questions.

The R. K. LeBlond Mach. Tool Co.
4620 Eastern Ave., Cincinnati, Ohio, U.S.A.

Niles Tool Works Company, New York, Eastern Agents.
J. Lambercier & Co., Geneva, Sole Agents for Switzerland.

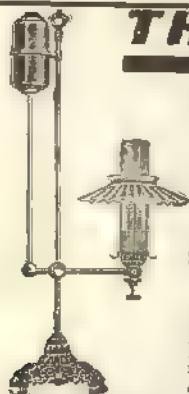


No. 3 Plain Milling Machine 10" x 21" x 32".

Do you want Catalogue of the good things in the Cycle line for 1902?

If so send in your name.

THE SIDNEY B. ROBY CO.
67, 69 AND 71 MILL STREET
ROCHESTER, N. Y.



THE NULITE VAPOR GAS LAMPS

For Home, Store and Street.

The Nearest Approach to Sunlight and Arc Light as Cheap

ARC ILLUMINATORS 25 CANDLE POWER.
7 HOURS TWO CENTS.

Make your stores light as day. A Hardware House writes us:

"It's like your lamps so well we are
now working nights in leafy days."

We also manufacture TABLE LAMPS, WALL LAMPS,
CHANDELIERS, STREET LAMPS, Etc. 100 Candle
Power seven hours ONE CENT. No noise. No smoke. No odor.
Absolutely safe. **THEY SELL AT SIGHT.** For heavy ter-
ritory to good agents. Write for catalogue and prices.

CHICAGO SOLAR LIGHT CO., Dept. D, CHICAGO, ILL.



NEVER BEFORE
HAD THE

Smith Two-Roller Spring Seat Post

Best with all general favor brought
to the attention of the public.



It is superior
in a number
of ways to
larger
seats.

Use and
of the
rollers will
insert free
of charge

You can't
get it any
elsewhere.
Write
today.

Jos. N.
Smith
& Co.

DETROIT
Mich.

PAT. JUNE 6-99.

WAKE UP!

Be Alive to Your Own
Interests.

Lots of Bicycle
Dealers are mak-
ing money selling

Engel's Mantels

which have the
reputation of be-
ing the

STRONGEST

and **BEST**

made for Wels-
bach lights and
Gasoline lamps.

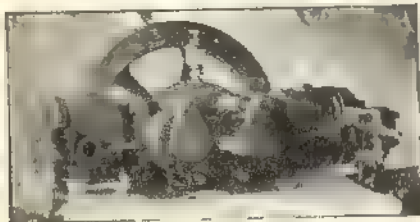
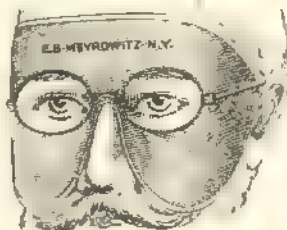
Only a small investment
necessary to start.



If your jobber cannot supply you
Address

ENGEL & CO.

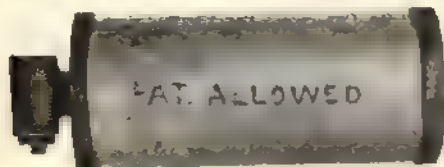
Chicago, Ill.

BEST OF THE BEST**"PERFECT" CARBURETORS****"PERFECT" SPARK PLUGS****USERS DEALERS BUILDERS**Get new illustrated folder and 1902 prices
discounts, etc., ready Feb. 10th, post free.**Perfect Power Equipment Co.****105 Beekman Street, New York****ADOPTED AS A STANDARD**Our 4 H. P. absolute Mopeds being used all over
the world for automobiles. Casing is fitted with
Motor Running gear for use in motor. Price very
low. Send your name on a postcard to MOTTEN MO-
TOR CO., 50 Columbia Heights, Brooklyn, N. Y.**Lattina
Cellular
Tires**The best wearing tire for cycles
and automobiles. Has all the ad-
vantages of the pneumatic tire with-
out any of its disadvantages. Every
user is a satisfied customer. Write
for printed matter.**The Rubber Tire Co.****1215 Market St., Philadelphia****AUTO MASKS AND GOGGLES
The "Fournier"****and other Auto Masks
and Face Protectors****SEND FOR DESCRIPTIVE PRICE LIST****E.B. Meyrowitz****104 E. 23d St.
New York**

Branches: Minneapolis and St. Paul

FUR LINED AUTO MASKS FOR COLD WEATHER DISCOUNT TO THE TRADE**THE METHOT FRENCH
CARBURETTOR**

MADE IN

THE DOW PORTABLE ELECTRIC CO.**218 TREMONT ST. BOSTON - 1135 BROADWAY N.Y.****19 LA SALLE ST. CHICAGO - LIPPINCOTT BLDG. PHILA****Six reasons why you
should use the WEEBER MUFFLER**

1. No noise from exhaust (other as steam).
2. No loss of power from engine.
3. Small in size, can be placed anywhere.
4. Cheap in price, costs less than others.
5. Can be made for a 1/2 hp. or 10 hp. motors.
6. Can be put on any carriage in use.

If interested, write for prices.

C. F. WEEBER MFG. WORKS, ALBANY, N. Y.

A Winning Proposition

That is what you will say on our line of tires after examining our 1902 catalogue of

**TIRES,
RUBBER GOODS,
AND
SPECIALTIES**

If you haven't received our catalogue, write at once. We are quoting prices that are sure to interest you. We have the best and easiest selling line of tires made. We mean business, and we intend to have lots of it. Write to-day for our special proposition on first orders.

THE HOOVER-BALL CO.
NEWARK, OHIO

**So Convenient for Showing Up
A WHEEL AND PARTS**



CYCLE EXHIBITION STAND

FOR SALE BY
ANY LEADING JOBBER
OR

New England Cycle Supply Co.
KEENE, N. H.

FELT GRIPS

FOR BICYCLES



D. P. HARRIS

Selling Agent

101 Reade Street, New York

WOODWORTH BROS.

Manufacturers

NEWTON HIGHLANDS, MASS.

THERE CAN BE
NOTHING BETTER
THAN THE

OAK SADDLE



SIMPLY BECAUSE
NOTHING BETTER

can be made; and as

WE MAKE EACH AND EVERY PART

of it, we are able to

NAME A PRICE

and to back it with a

GUARANTEE

such as goes with

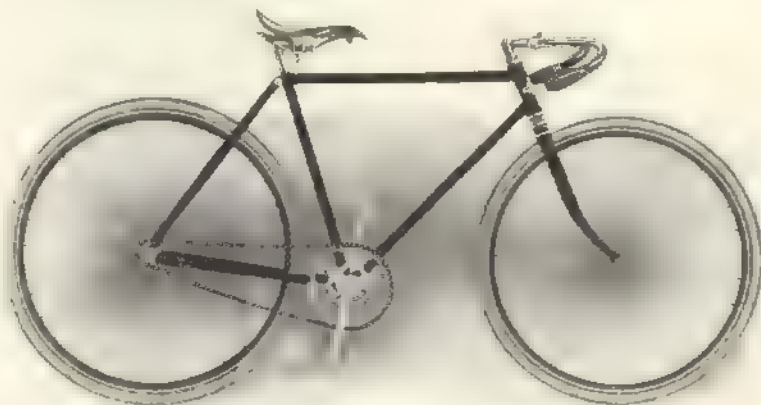
No Other Saddle

Newark Cycle Specialty Co.

NEWARK, N. J.

ORIENT BICYCLES

MOTOR CYCLES AND AUTOMOBILES



TRACK RACER, MODEL 78, PRICE \$50.00

Write for handsome new catalogue.

Get the agency for 1902.

WALTHAM MFG. CO., WALTHAM, MASS.

Light Cycles

Automobile Running Gears
and Wire Wheels

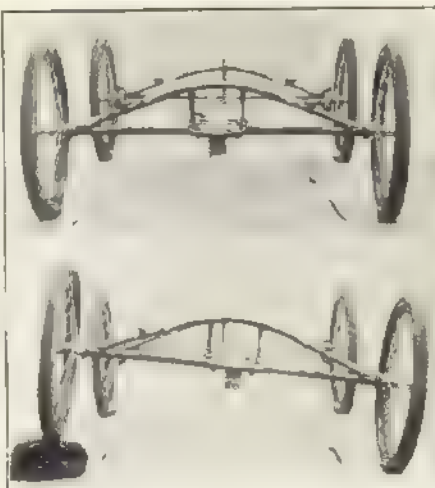
Eleven models, including
juveniles. List prices,
\$25.00 to \$75.00.

Our wheels are strictly up-to-date and
thoroughly reliable and with wheels
such as these, prices are made to
suit the present trade conditions.

Light Cycles have been
favorably known
since 1891.

Special features of great value

Ask for further information



LIGHT CYCLE CO., POTTSTOWN
PA.

IRON FIRE SETS.



No. 9711, IRON FIRE SET.

No. 9711—Iron Fire Sets,
Wrought Iron
Finish, Height 27½
inches, Weight Per
Set 13 lbs., Per Set, \$9 00



No. 10239, IRON FIRE SET.

No. 10239 Iron Fire Sets,
Wrought Iron,
Height 34 inches,
Weight Per Set 13
lbs., . Per Set, \$10 50



No. 10297, IRON FIRE SET.

No. 10297—Iron Fire Sets,
Wrought Iron,
Height 28½ inches
Weight Per Set 12
lbs., . Per Set, \$10 50

IRON UMBRELLA STANDS.



No. 3017, IRON UMBRELLA STAND.

No. 3017—Iron Umbrella Stands, Wrought
Iron Finish, Height 24 inches, Weight
Each 12½ lbs., ... Each, \$5 25



No. 10079, WROUGHT IRON UMBRELLA STAND.

No. 10079—Wrought Iron Umbrella Stands,
Height 24 inches, Weight Each 9 lbs.,
Each, \$7 50

IRON FIRE SETS. WROUGHT IRON FINISH.



No. 9703, IRON FIRE SET.

No. 9703—Iron Fire Sets,
Wrought Iron Finish, Height
23 inches, Weight Per Set
9½ lbs., . . . Per Set, \$3 75



No. 9718, IRON FIRE SET.

No. 9718—Iron Fire Sets,
Wrought Iron Finish, Height
24½ inches, Weight Per Set
10 lbs., . . . Per Set, \$4 50



No. 9701, IRON FIRE SET.

No. 9701—Iron Fire Sets,
Wrought Iron Finish, Height
27 inches, Weight Per Set
11 lbs., . . . Per Set, \$5 25



No. 9720, IRON FIRE SET.

No. 9720—Iron Fire Sets,
Wrought Iron Finish, Height
28 inches, Weight Per Set
11½ lbs., . . . Per Set, \$6 00



No. 9706, IRON FIRE SET.

No. 9706—Iron Fire Sets,
Wrought Iron Finish, Height
27 inches, Weight Per Set
22 lbs., . . . Per Set, \$8 25



No. 9710, IRON FIRE SET.

No. 9710 Iron Fire Sets,
Wrought Iron Finish, Height
27 inches, Weight Per Set
12 lbs., . . . Per Set, \$8 25

DIP NET RINGS AND HANDLES COMPLETE.



No. 40—Dip Net Rings and Handles, Detachable, 14 inch Round Ring, Handle 3½ feet. The shanks of the Ring are made of two Projecting Points which fit into holes bored into the handle. Handle is made with two Slots, to admit of the Shanks being flush with handle. The Thimble or Ferrule slides over the Shanks, which hold the Ring in place and

makes it impossible for Ring to pull out. Ring is made of Coppered Wire, lacquered to prevent rusting. Ring can be separated from the handle, which makes it very compact to carry, ... Per Dozen, \$6 00

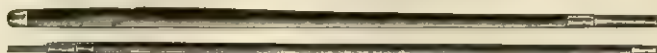
No. 41—Dip Net Rings and Handles, same as No. 40, except D shaped Ring, ... Per Dozen, 7 25

DIP NET RINGS AND HANDLES.



No. 10—Iron Dip Net Rings, Tinned, with Spike,

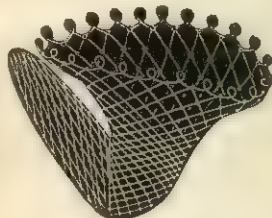
Sizes, inches, ...	12	14	16
Per Dozen, ...	\$2.00	2.40	3.00



No. 11.

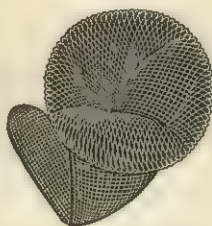
No. 11—Dip Net Handles, Wood, 4 feet long, Two Joints, with Ferrule, Bored for Ring, ... Per Dozen, \$6 00

DIP NETS.



No. 12, COTTON DIP NET.

Per Dozen.	
30 inch Nets, ¾ inch, 8 thd.,	\$6 50
36 inch Nets, ¾ inch, 9 thd.,	8 50
30 inch Nets, ¾ inch, 12 thd.,	8 50
36 inch Nets, ¾ inch, 12 thd.,	10 00
30 inch Nets, ¾ inch, 24 thd.,	14 00
30 inch Nets, 1 inch, 24 thd.,	9 00
36 inch Nets, 1 inch, 24 thd.,	10 00



No. 16, COTTON MINNOW DIP NET.

Per Dozen.	
12 inch Nets, ...	\$3 50
16 inch Nets, ...	5 00
18 inch Nets, ...	5 50
20 inch Nets, ...	7 00
24 inch Nets, ...	8 50

These Nets are made of No 20 6-ply cable laid twine. The mesh is ¾ inch square at bottom of net.



Cut shows Net open in the act of being raised from the water.

Net Folded, weight 6 ounces.

No. 17—Breeding's Folding Minnow Net, Per Dozen, \$20 00

Will keep you in fresh minnows without going in the water. Weighs but six ounces, and folds for convenience in carrying. "No Fisherman's kit is complete without it" is the general verdict.

LIVE NET.



LIVE NET, COLLAPSIBLE, WITH 3 METAL HOOPS.

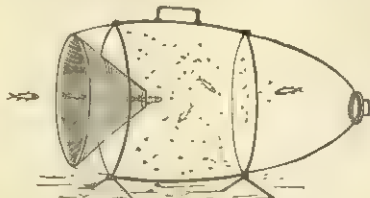
No. 33—10 inch, ... Per Dozen, \$7 50
 No. 34—12 inch, ... " 9 25

FLOATING LIVE BOX FOR MINNOWS.



No. 35 Mack's Floating Live Box for Minnows,
 Air Chamber, Japanned and Ornamented,
 10 inch diameter, 5 inch opening. Per Dozen, \$17

GLASS MINNOW TRAP.



No. 36—Orvis Minnow Trap, Heavy Flint Glass,
 Handle and Legs Galvanized Metal, size 13
 inches long, 24 inches in circumference, Each, \$4 50
 Each Trap is packed in hinged wooden box.

FLOATING LIVE BOX.



No. 37 Floating Live Box, to Hold Fish Instead
 of Stringing, 14 inches diameter, length 30
 inches, mesh $\frac{3}{4}$ inch, . . . Per Dozen, \$26 00

The air-chamber is of sufficient buoyancy to sustain the
 weight of as many fish as the box will contain.

Number of cubic inches in air-chamber, 205. When box is
 collapsed takes up a space of 14 by 3 inches.

TROUT BASKETS.



WILLOW TROUT BASKETS.

Size, ...	1	2	3	4
Capacity, lbs., ...	9	12	30	25
Per Dozen, ...	\$17.00	22.00	26 00	35.00

STRAPS FOR TROUT BASKETS.

No. 5—Waist Straps, ...	Per Dozen, \$2 50
No. 6—Shoulder Straps, ...	" 7 50

TABLE LAMPS.

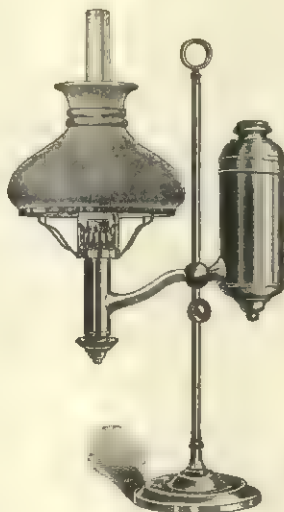
STUDENTS' LAMPS.



No. 1300, PARKER.

NICKEL PLATED AND EMBOSSED, COMPLETE WITH
OPAL DOME SHADE, TRIPOD AND CHIMNEY.

No. 1300—Parker's Table Lamps, Nickel Plated,
Height 11 inches, Complete with No. 2
Parker's Central Draft Burner, Tripod
and 10-inch Opal Dome Shades,
No. 2 Rochester Lamp Chimney and
Wick, ... Each, \$3 25



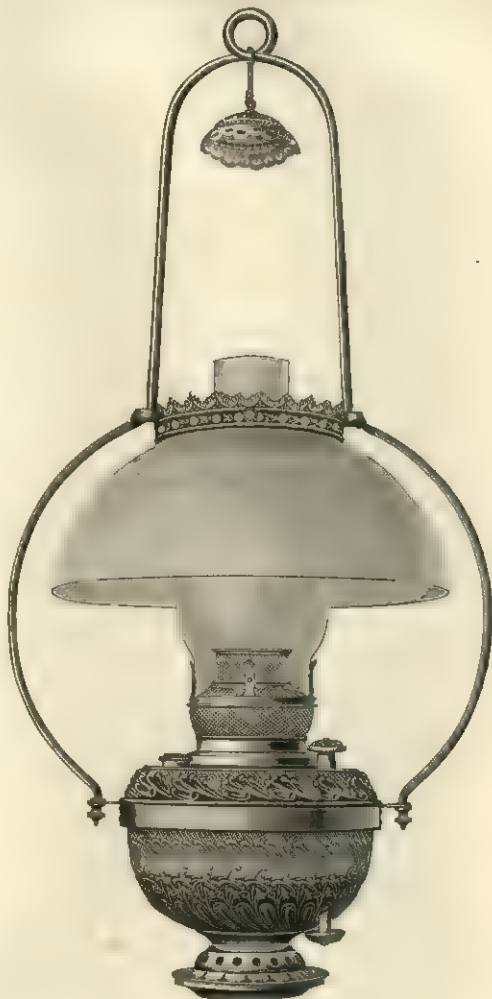
STUDENT LAMP.

HANDSOMELY NICKEL PLATED, WILL BURN ALL
NIGHT, HAVING CAPACITY OF 16 HOURS.

- No. 2/G—Student Lamps**, Nickel Plated, Glass
Fount with Spring Valve, which Enables
Fount to be Filled without Danger of
Overflow, as Oil is Always in Sight,
Complete with 7-inch White Shades
and No. 1 Chimneys, . . . Each, \$5 00
- No. 2 GG—Student Lamps**, with 7-inch Green
Shades, Otherwise Same as No. 2/G,
Each, 5 75
- No. 2/T—Student Lamps**, with Tin Fount, Com-
plete with 7-inch White Shades and
No. 1 Chimneys, ... Each, 4 25
- No. 2/TG—Student Lamps**, with 7-inch Green
Shades, Otherwise Same as No. 2/T,
Each, 5 00

For Chimneys and Wicks, see pages 1140 and 1141.

HANGING LAMPS.



No. 01720, PARKER LAMP.

No. 01720—Parker's Hanging Lamps, Length 37 inches, Complete with No. 3 Parker Burners, Embossed Brass, Highly Finished, Patent Lock Ring Harps, 14-inch Porcelain Shades, which are Held in Place by Set Screws in the Crown of the Lamps, Smoke Bells and No. 3 Rochester Chimneys and Wicks, . Each, \$8 00

Packed Complete One in a box, Weight 35 Pounds.

For Chimneys and Wicks, see pages 1140 and 1141.

HATCHETS.

HUNT'S, BRONZE FINISH, POLISHED BITS.



HUNT'S SHINGLING

- No. 801**—Size 1, Weight, 1 lb., 1 oz., Bit, $3\frac{1}{4}$ inches,
Per Dozen, \$8 00
- No. 802**—Size 2, Weight, 1 lb., 5 oz., Bit, $3\frac{1}{4}$ inches,
Per Dozen, 8 50
- No. 803**—Size 3, Weight, 1 lb., 10 oz., Bit, $4\frac{3}{4}$ inches,
Per Dozen, 9 00



HUNT'S HALF

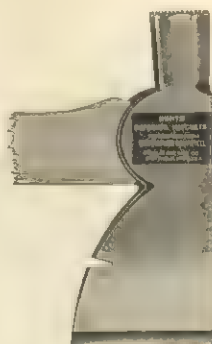
- No. 811** Size 1, Weight, 15 oz., Bit, $3\frac{1}{4}$ inches
Per Dozen, \$8 50
- No. 812**—Size 2, Weight, 1 lb., 5 oz., Bit, $3\frac{1}{4}$ inches.
Per Dozen, 9 00
- No. 813** Size 3, Weight, 1 lb., 11 oz., Bit, $4\frac{1}{4}$ inches
Per Dozen, 9 50

Packed One-half Dozen in a pasteboard box.



HUNT'S CLAW

- No. 821**—Size 1, Weight, 1 lb., 3 oz., Bit, $3\frac{1}{4}$ inches,
Per Dozen, \$9 00
- No. 822**—Size 2, Weight, 1 lb., 7 oz., Bit, $3\frac{1}{4}$ inches,
Per Dozen, 9 50
- No. 823**—Size 3, Weight, 1 lb., 12 oz., Bit, $4\frac{1}{4}$ inches,
Per Dozen, 10 00

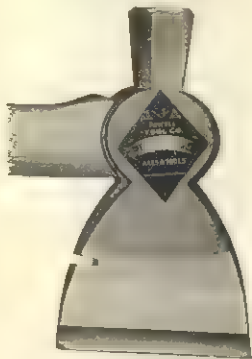


HUNT'S LATHING

- No. 831**—Size 1, Weight, 14 oz., Bit, $2\frac{1}{2}$ inches,
Per Dozen, \$8 00
- No. 832**—Size 2, Weight, 1 lb., 1 oz., Bit, $2\frac{1}{2}$ inches,
Per Dozen, 8 50
- No. 833**—Size 3, Weight, 1 lb., 4 oz., Bit, 3 inches,
Per Dozen, 9 00

Packed One-half Dozen in a pasteboard box.

HATCHETS. PEERLESS LINE.



PEERLESS SHINGLING
GOLD BRONZE FINISH, POLISHED BITS.

- PEERLESS SHINGLING.**
- No. 201—Size 1, Weight, 1 lb. 1 oz., Bit, $3\frac{1}{4}$ inches, Per Dozen, \$8 00
 No. 202—Size 2, Weight, 1 lb. 7 oz., Bit, $3\frac{1}{4}$ inches, Per Dozen, 8 50
 No. 203—Size 3, Weight, 1 lb. 15 oz., Bit, $4\frac{1}{4}$ inches, Per Dozen, 9 70

- PEERLESS HALF.**
- No. 211—Size 1, Weight, 15 oz., Bit, $3\frac{1}{4}$ inches, Per Dozen, \$8 50
 No. 212—Size 2, Weight, 1 lb. 5 oz., Bit, $3\frac{1}{4}$ inches, Per Dozen, 9 00

One-half Dozen in a box.

EXCELSIOR LINE.



EXCELSIOR SHINGLING.
GOLD BRONZE FINISH, POLISHED BITS.

- EXCELSIOR SHINGLING.**
- No. 101—Size 1, Weight, 1 lb. 1 oz., Bit, $3\frac{1}{4}$ inches, Per Dozen, \$8 00
 No. 102—Size 2, Weight, 1 lb. 7 oz., Bit, $3\frac{1}{4}$ inches, Per Dozen, 8 50

- EXCELSIOR HALF.**
- No. 111—Size 1, Weight, 15 oz., Bit, $3\frac{1}{4}$ inches, Per Dozen, \$8 50
 No. 112—Size 2, Weight, 1 lb. 5 oz., Bit, $3\frac{1}{4}$ inches, Per Dozen, 9 00

One-half Dozen in a box.

PEERLESS CLAW.

- No. 221—Size 1, Weight, 1 lb. 3 oz., Bit, $3\frac{1}{4}$ inches, Per Dozen, \$9 00
 No. 222—Size 2, Weight, 1 lb. 9 oz., Bit, $3\frac{1}{4}$ inches, Per Dozen, 9 50

PEERLESS LATHING

- No. 231—Size 1, Weight, 14 oz., Bit, $2\frac{1}{4}$ inches, Per Dozen, \$8 00
 No. 232—Size 2, Weight, 1 lb. 1 oz., Bit, $2\frac{1}{4}$ inches, Per Dozen, 8 50

EXCELSIOR CLAW.

- No. 121—Size 1, Weight, 1 lb. 3 oz., Bit, $3\frac{1}{4}$ inches, Per Dozen, \$9 00
 No. 122—Size 2, Weight, 1 lb. 9 oz., Bit, $3\frac{1}{4}$ inches, Per Dozen, 9 50

EXCELSIOR LATHING.

- No. 131—Size 1, Weight, 14 oz., Bit, $2\frac{1}{4}$ inches, Per Dozen, \$8 00
 No. 132—Size 2, Weight, 1 lb. 1 oz., Bit, $2\frac{1}{4}$ inches, Per Dozen, 8 50

BASS FLIES.



No. 101—Bass Assortment, Double Gut, on No. 2/0 Hollow Point Sproat Hooks, Four Flies on Card, with One Best Grade Two-yard Double Gut Bass Leader, ... Per Dozen, \$18 00

Packed One Card in fancy box.



No. 23—Bass Flies, Double Gut, on Sproat Hooks,
Nos. 1/0, 1 and 2, ... Per Dozen, \$1 00

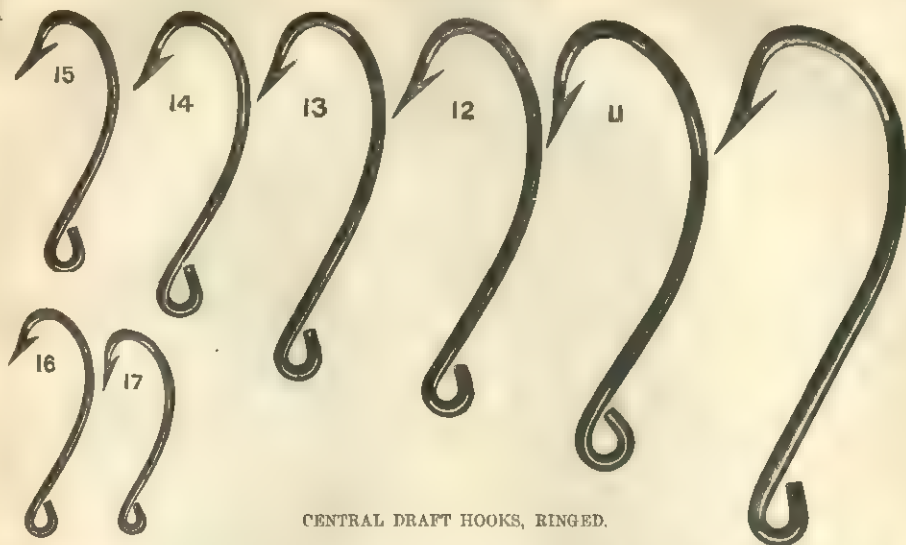


No. 24—Bass Flies, Double Gut, on Sproat Hooks,
Nos. 1/0, 1 and 2, Silk Body, ... Per Dozen, \$1 50

Packed Two Dozen in a box.

Furnished in the following styles: White Miller, Lord Baltimore, Yellow May, Coachman, Royal Coachman, Green Drake, Golden Pheasant, Seth Green, Silver Doctor, Golden Doctor, Red Hackle, Brown Hackle, Ferguson, Grizzly King, Peacock, Professor, Raven, Red Ibis, Governor and Yellow Robin.

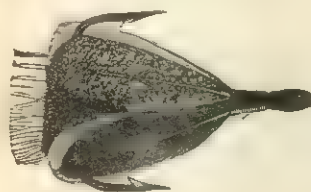
FISH HOOKS.



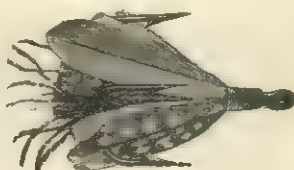
CENTRAL DRAFT HOOKS, RINGED.

Nos.	Per Gross,	10	11	12	13	14	15	16	17	18	19	20
American,		\$3.25	2.00	1.50	1.10	.80	.70	.60	.55	.50	.45	.45
Milward's,		4.00	3.00	2.35	1.50	.10	.90	.80	.70	.70	.70	.70

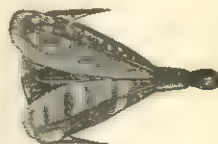
Packed One Gross in a Box



5/0



4/0



2/0

FEATHERED TREBLE HOOKS, BRAZED.

Milward's Bright, Rust Proof,	{ Nos.	6/0	5/0	4/0	3/0	2/0	0	1 to 12
	{ Per Dozen,	\$3.10	3.00	2.75	2.50	2.30	2.00	1.50



4/0



3/0



2/0



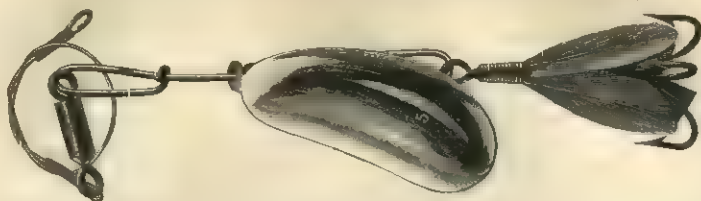
1/0

TREBLE HOOKS, BRAZED.

Bright,	{ Nos.	6/0	5/0	4/0	3/0	2/0	0	1 to 12
	{ Per Dozen,	\$0.80	.70	.65	.60	.50	.45	.40

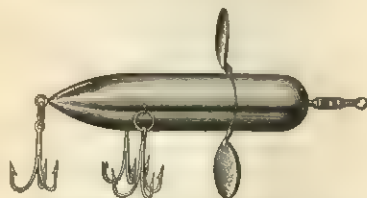
Packed Six Dozen in a box.

PIKE AND PICKEREL KIDNEY BAITS.



Pike Bait—Feathered Treble Hook, Patent Double Swivel, Nos. 2, 3, 4, 5 and 6, ... Per Dozen, \$0 00
Packed One Dozen in a box.

ALUMINUM FISH PHANTOMS.



THE CELEBRATED "BLUBBER" BAIT.

Aluminum Fish Phantom is one of the most successful Artificial Baits for Pickerel and Bass ever produced.

No. 1	4 inches long.	Per Dozen, \$22 50
No. 2	3½ inches long.	" 17 50
No. 3	2 inches long.	" 11 00
No. 4	2½ inches long.	" 9 00

FISHING HATS AND GLOVES.



No. 1, FISHING HAT.

No. 1—Fishing Hat, can be folded and put in pocket, ... Per Dozen, \$5 50

FISHING GLOVES.

No. 10—Fishing Gloves, made from Napa Green Kid Leather, selected; long wrist and short fingers, ... Per Pair, 2 00

TOURISTS' CUPS.

PURE ALUMINUM.



TELESCOPIC.

No. 190—Highly Polished, 2x2½ inches, Per Dozen, \$4 00

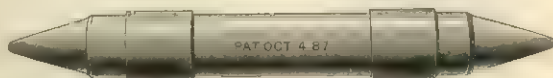
Packed One in a box.



TELESCOPIC.

No. 250—Highly Polished, with Cover, 2½x3½ inches, ... Per Dozen, \$8 00

PATENT REEL HOLDERS.



No. 150 Brower's Patent Reel Holder, nickel-plated, can be applied to any reel, no cutting nor filing required, especially adapted to Calcutta and Japanese Reels, ... Per Dozen, \$4 00
Packed One dozen in a box.

DISGORGERS.



No. 200—Disgorgers, Plain Wire. Per Dozen, \$0 00
 No. 200-X Disgorgers, Brass, Nickel-Plated. 80



No. 290—Disgorgers, Tinned Ford's Pattern Single End, Per Dozen, \$2 50



No. 300—Ford's Disgorgers, Nickeled, Double End, . . Per Dozen, \$4 00

FISH SCALES.



No. 20

No. 20—Novelty Fish Scales, 1 lb. to 15 lbs., ... Per Dozen, \$5 00
 No. 25 Fish Scales Brass, very Strong and Durable, 1 lb. to 25 lbs., ... Per Dozen, 0 00

MOSQUITO SHIELDS.



No. 250—Mosquito Shields for the Head, Per Dozen, \$10 00

A sure protection from Mosquitoes, Gnats, Black Sand and House Flies; an indispensable article of comfort by night or day in localities infested with these insects.

MOSQUITO CHASERS.



No. 251—Arkansas Mosquito Chasers. A positive preventative against the bite of Mosquitoes. A new and novel and highly effective Mosquito Chaser.

Each packed in wood screw cover case, 1 dozen in box, with formula printed on label, ... Per Dozen, \$4 00

CLEARING RINGS.



Exact Size.

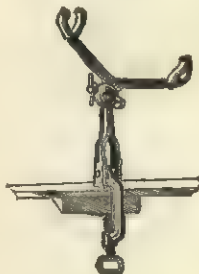
No. 150.

No. 100—Clearing Rings, Lead, diameter 1½ inches, ... Per Dozen, \$1 25

No. 150—Clearing Rings, Brass, with slot, but without hinge, diameter 1½ inches, ... Per Dozen, 8 00

No. 200—Clearing Rings, with hinge, diameter 1½ inches, . . Per Dozen, 10 00

ROD HOLDERS.



No. 400.

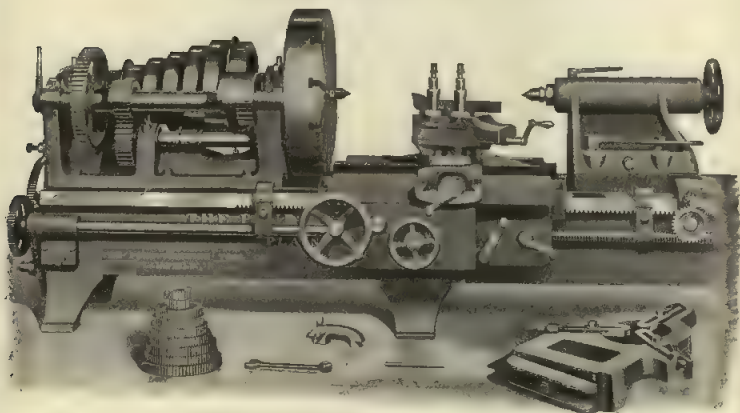


No. 450.

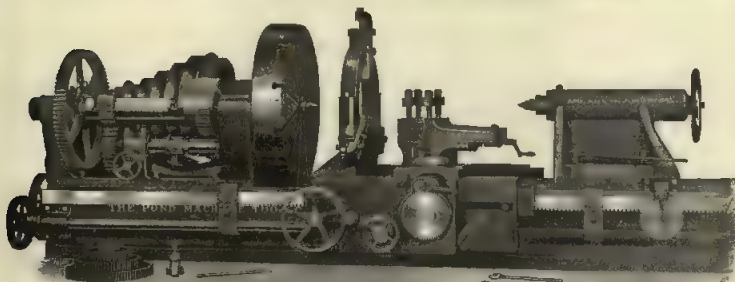
No. 400—Universal Rod Holders, ... Per Dozen, \$24 00
 No. 450—Trojan Rod Holders, ... 12 50

POND MACHINE TOOL CO.,

Plainfield, N. J.



POND 32-INCH TRIPLE GEARED ENGINE LATHE.



POND 48-INCH FORGE LATHE.

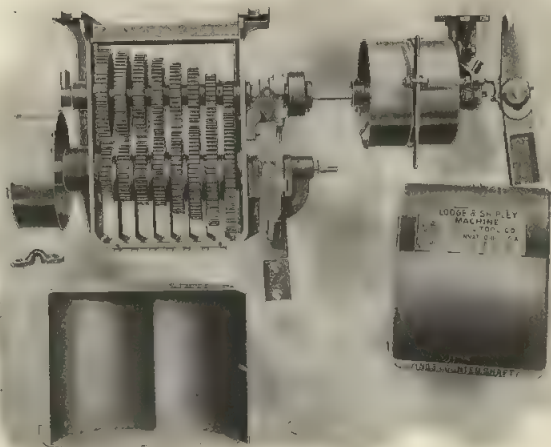
LATHES

from 28-inch to 84-inch swing over ways.
Let us send you our new Lathe Catalog
"A" describing fully our line of Heavy Screw-Cutting Engine Lathes.

NEW YORK—130 138 Liberty St.
PHILADELPHIA—21st and Calowhill Sts.
BOSTON—144 Pearl St.

PITTSBURGH—Prick Building.
CHICAGO—Western Union Building.
ST. LOUIS—516 North 3rd St.

MONTREAL—50 Cathcart St., Charles Spalding
LONDON—23 25 Victoria St., S. W.



THE SPEED VARIATOR.

In developing the **Speed Variator**, the object has been to produce a permanently efficient driving mechanism, giving as large a range and number of speeds as machines in general require. We have not looked favorably upon friction-driven devices that give an infinite number of "unknown" speeds, preferring a reasonably sufficient number of positive geared speeds. *All tools cut in steps*; therefore a positive, step-by-step speed variation is all that is necessary. To illustrate: When reducing a three inch shaft to two and one-quarter inches diameter, at one cut, at a speed of 25 feet per minute the shaft will make 32 revolutions per minute, but at this number of revolutions the point of the tool will be cutting at a speed of less than 10 feet per minute. If, now, another cut is to be taken to reduce the shaft to 2 inches at the same cutting speed of 25 feet per minute, the speed of the lathe will have to be increased to 43 revolutions per minute, showing that for a 3/4 inch cut at 3 inches diameter, there is no call for any speed between 32 and 43. This is what we mean when we say that all tools cut in steps, and that the infinite number of speeds given by a **frictional** speed-changing device is really unnecessary.

Should the user of a **Speed Variator** desire speeds between those given by the gears, a complete intermediate series can be readily obtained by the use of an additional driving pulley, in which case an ordinary back-geared lathe would have 32 speeds.

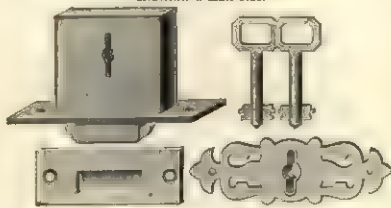
WRITE FOR CATALOG.

The Lodge & Shipley Machine Tool Co.

Cincinnati, Ohio, U.S.A.

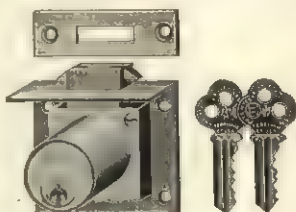
DESK LOCKS.

Illustration Half Size.



No. 1984/C, DESK LOCK.

No. 1984/C—Rolling Top Desk Locks, 3-inch, Brass Selvedges and Escutcheons, Patent Self-closing Striker, Solid Square Boxes, Four Secure Hook Tumblers, One Ward, Two Nickel Plated Solid Steel Keys, Per Dozen, \$8 00
Packed One-half Dozen in a box, with Screws.



No. 03052, DESK LOCK.

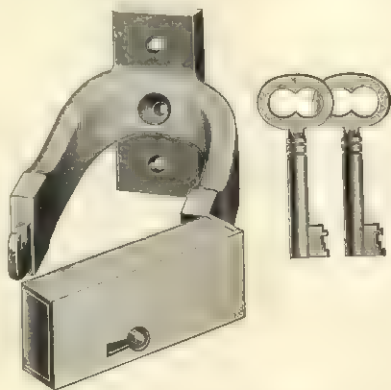
No. 03052 2 1/4-inch, All Brass, Pin-Tumblers, Square Selvedge, Screwed, Heavy Double Hook Bolts, Two Gilt Bow German Silver Keys, Cylinders 1 1/4 inches in Diameter, 1 inch from Selvedge to Center of Cylinder, Per Dozen, \$18 50
Packed One-twelfth Dozen in a box.



No. 01896, DESK LOCK.

No. 01896—2-inch, All Brass, Square Selvedges, Hook Bolts, Screwed, Two Secure Levers, Two Nickel Plated Flat Steel Keys, 7/8 inch from Selvedge to Center of Key Cylinder, Per Dozen, \$6 50
Packed One Dozen in a box.

BILLIARD CUE LOCKS.

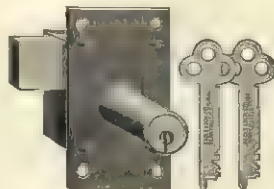


Full Size Out.

No. 207, BILLIARD CUE LOCK.

No. 207—Billiard Cue Locks, 1 1/2-inch, All Brass, Self-locking, Two Flat Bow Keys, Per Dozen, \$11 50
Packed One Dozen in a box.

LOCKER LOCKS.



Half Size Out.

No. 1934, LOCKER LOCK.

No. 1934—3 x 1 1/2 inches, Iron, Solid Square Boxes, Five Secure Levers, Heavy Brass Bolts that Shoot Right and Left, Two Nickel Plated Flat Steel Keys, Can be furnished with 3,000 Changes, Per Dozen, \$10 00
Master Keys, for Above, Each, 50

For Comparative List and Numerical Index, see page 825.



**STERLING
BICYCLE**

CHAINLESS

\$22.50

We offer the Sterling bevel-gear Chainless Bicycles to one dealer in a town at \$22.50 if orders are received before our stock of 500 wheels is sold. At this price you are in a position to sell your customers at the prices other dealers must pay for wheels of equal grade. Don't delay, but order now, for when the season opens no high-grade chainless can be had for less than \$47.50.

READ THESE SPECIFICATIONS

Hartford or Morgan & Wright Single Tube Tire & Wheeler style, Brown Hard, or Garford Padded Saddle, Stern & Sons' A-1 Chain, 1 1/2" Bar and 1 1/2" All accessories included in the well-known Sterling Green, with new Sterling chainless frame. The size shown is men's 22 and 24 inch frames and women's 22 inch, and the gears are 28 and 38 interchangeable to 48, women's 68. Palmer Tires, \$1.00 extra.

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Our catalogue No. 26 contains 133 pages (6 1/2 x 9 1/2) describing Bicycle, Automobile, Gun and Outing Goods. Owing to the expense of publishing and mailing it will only be sent free to dealers who write us on this coupon that they are interested in the goods we sell. We employ no traveling salesmen and you receive the benefit of our saving as shown in our low net price list.

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Tires, ...

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Price, \$2
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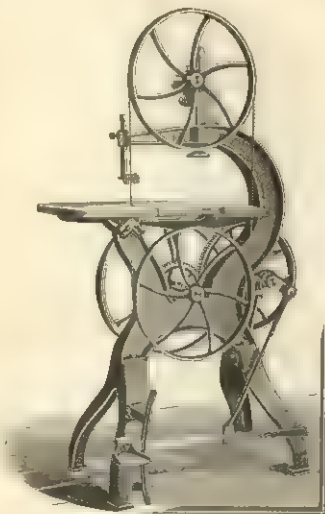
Name

Town

Dept. A, Business

State

BAND SAWS.



MARSTON'S 20 INCH HAND AND FOOT POWER SAW.

Marston's—20 Inch, Complete with **Two** Saw Blades, $\frac{7}{16}$ and $\frac{5}{16}$ inch, set and filed, **one** Crank Handle and **one** Wrench. Machine occupies floor space of 27x44 inches. Height to top of saw pulley, 5 feet 8 inches. Height of table from floor, 3 feet 4 inches. . Each, \$85 00

Net weight, 350 lbs.

Adapted to all kinds of work, such as is done on a Power Band Saw, and is invaluable to those not having power.

Frame is cast in one piece, and carries all the working parts. Legs are securely bolted to same.

Shafts are all of steel, lathe-turned, and run in iron boxes, lined with best Babbitt metal, and are 4 and $4\frac{1}{4}$ inches long, accurately bored, and run very free.

The upper bearing for band wheel, which slides on accurately planed gibbed ways, is adjustable up and down by means of a hand wheel, so that saws can be used until they are entirely worn out, and it also has adjustment to line it up with lower saw pulley.

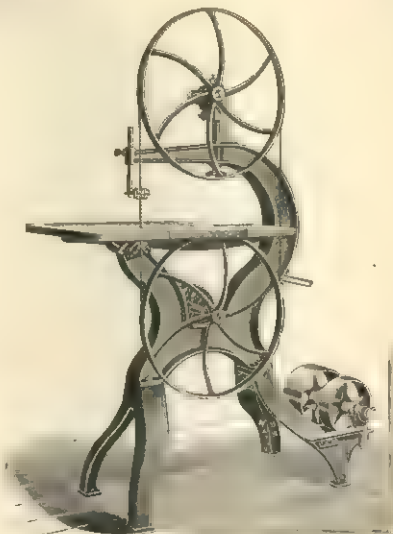
Gears are all automatic machine-cut, from solid iron.

Saw Pulleys are 20 inches in diameter, turned and covered with endless pure rubber bands, strengthened with canvas, and will cut to center of a 40-inch circle.

Top Guide is a roller guide wheel, and is made of hardened steel to receive thrust of saw. Lower guide is hard wood and easily made when worn out. Distance between table and upper guide, 7 inches.

Table is made of kiln dried hard-wood, 22x22 inches, and is 3 feet 4 inches from floor.

Table is secured to iron cleat or segment underneath, and is arranged to tilt for cutting on a bevel.



MARSTON'S 24 INCH POWER SAW.

Marston's—24 Inch, Complete with **Two** saws $\frac{7}{16}$ and $\frac{5}{16}$ inches, set and filed. Floor space 2x4 $\frac{1}{2}$ feet. Height to top of saw pulley, 6 feet. Height of table from floor, 3 feet 4 inches. . Each, \$85 00

Net weight, 340 lbs.

It has been made with special reference to the demand for a good, well-made, accurate machine that would not occupy too large amount of floor space, but would have power and capacity for all kinds of band-sawing, such as found in carpenter shops, cabinet shops and small job shops, etc., and is especially adapted to run by electric motor.

Frame is cast in one piece, legs are securely bolted to same, and countershaft is made a part of the legs at back of machine.

Shafts are of steel, large and good length, lathe-turned and run in iron boxes lined with best Babbitt metal; upper band wheel bearing slides on accurately planed gibbed ways, and is adjustable up and down by means of hand wheel, and is also adjustable to bring band wheels into line.

Saw Pulleys are 24 inches in diameter, $1\frac{1}{4}$ inches face, covered with endless pure rubber bands, strengthened with canvas.

Shipper is furnished on each machine.

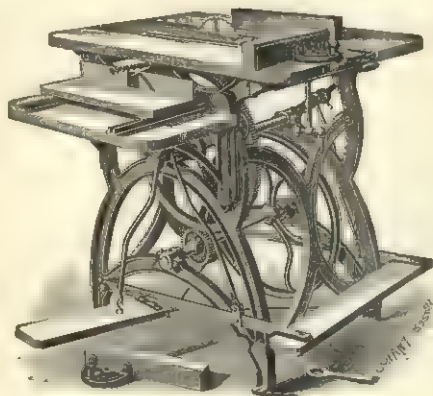
Guides both above and below table. Top guide is a roller guide wheel made of hardened steel, to receive thrust of saw. Distance between table and upper guide 7 inches.

Table is 24x24 inches and made of kiln-dried hardwood, and has extra table, covering lower saw pulley. Height of table from floor, 3 feet, 4 inches; floor space occupied, about 2 feet by 4 $\frac{1}{2}$ feet; whole height, 6 feet.

Countershaft is furnished on each machine, as shown on cut, with two pulleys, 9-inch and 10-inch diameter.

Speed of countershaft, 300.

HAND AND FOOT POWER CIRCULAR SAWS.



Cut Shows Saw with Boring Attachment.

No. 1, MARSTON'S CIRCULAR SAW.

No. 1 Marston's Hand and Foot Power Circular Saws, with Boring Table, with two 7 inch saws, one each cross-cut and rip, set and filed; two Cutting-off gauges, one Ripping gauge, one Wrench and two Crank Handles. Balance Wheels weigh 40 lbs. Each, \$67 00

Net Weight of Machine, 330 lbs.

No. 1—Marston's, Without Boring Attachment and Side Treadle, ... Each, \$90 00

Frame made entirely of iron and of a design that gives it great strength and, with the amount of iron and the thorough manner of bolting together makes it very rigid and its weight sufficient to make fastening to the floor when working unnecessary. In its construction the very best iron and steel are only used, and all parts are designed with reference to the work they are to perform.

The working parts consist of two shafts and the saw arbor. The center shaft receives the power from the operator either by treadle or crank, and is applied direct by means of a 20-inch cut gear to that shaft which meshes into a 2-inch pinion gear on the saw arbor and also with a 1 $\frac{1}{2}$ -inch gear on the lower shaft, which also carries a lathe-turned balance wheel 23 inches in diameter and weighing 40 lbs. By this means the balance wheel is given a speed four and one-half times greater than the crank or driving shaft, giving it sufficient momentum and power to carry the saw steadily through the work. At the same time the 20-inch gear, meshing into the 2-inch gear of the saw arbor, gives the saw a speed ten times greater than the crank shaft.

All shafts are made of Bessemer steel, accurately lathe-turned, and are not cold rolled. Diameter, 1 $\frac{1}{2}$ inch. The arbor is made of open hearth steel, $\frac{3}{4}$ of an inch in diameter, with U. S. standard thread and case hardened nut on end where saws are used, which is turned to $\frac{1}{4}$ inch diameter and has sufficient space between the collars to take a center lead up to one inch in thickness. A collar with set screw is also provided to prevent end motion.

All arbors have a $\frac{3}{8}$ -inch hole and set screw in opposite or outer end for holding bits, whether the machine is sold with or without a boring-table.

The 20-inch and 4 $\frac{1}{2}$ -inch gears are made and carefully turned from the very best of iron, and are accurately cut by automatic machinery, and will run quietly and smoothly.

The 2-inch gears are made of the best gun metal and are very durable. All gears and wheels are pressed on to the shafts by a powerful press and are also held by set screws.

The boxes are all of genuine babbit metal, made especially to our order, and will wear for years without needing rebabbiting.

The treadles are made of wrought iron, and the cranks have extension handles that can be adjusted to different length of stroke. The table is 28 inches wide by 37 inches long, and the entire height of machine is 36 inches.

The improved iron top, which we are now using on all of our Circular Saw Machines, consists of a center piece 10 inches wide running the whole length of the table, and is bolted solidly to plated cleats on under side, and as it contains the grooves that the cutting-off gauges slide in, and is the part subjected to the greatest wear, it must of necessity be made perfectly accurate and true at all times to make the machine of any value as a help in the workshop, and of profit to the purchaser.

It is not affected by moisture, and will not warp or twist, the great fault common to all tops made entirely of wood. The grooves for the two cutting-off gauges mentioned above, which are planned in this iron top, are on each side of the saw and are perfectly parallel, and adjusted in line with the saw. It is made perfectly straight, square, and the grooves are in line with the saws.

The gauge tongues are of steel, and are accurately fitted. The ripping gauge slides in a paired iron groove on the right to the saw. The balance of the table on each side of the iron top is made of hardwood turned off and with same. The table is bolted at the back and can be raised by means of a hand wheel for grooving, rabbeting, etc. They are sent out all ready to run, when taken out of the crate.

Write for Catalog of Marston's Power Circular Saw Bench.

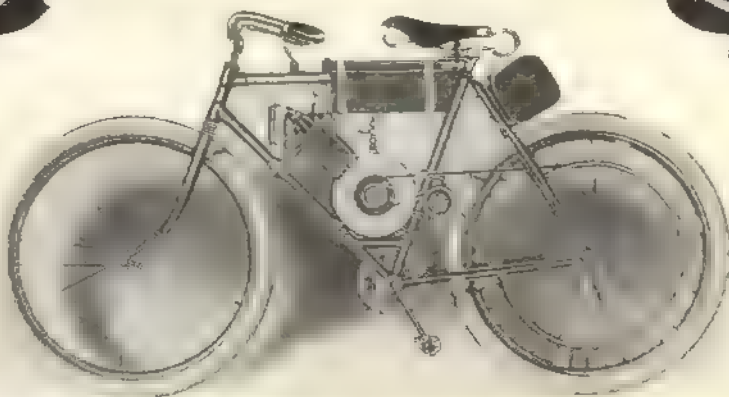
THE 1902 MERKEL MOTOR CYCLE

WE GUARANTEE

The Reliability and Other
Qualities SATISFACTORY

Single Lever Control
Ball Bearing Idler
Steel Rear Pulley
2½ H. P. Motor
Very Quiet

Special Inducements to Prospective Agents

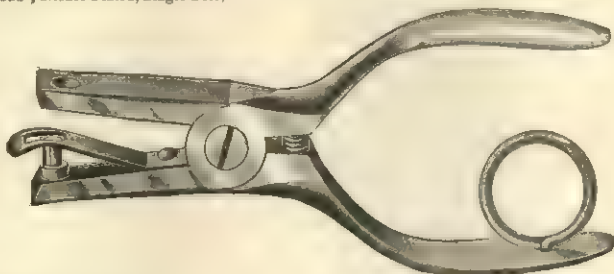


ADDRESS
MERKEL MFG. CO., MILWAUKEE, WIS.
DEPARTMENT T

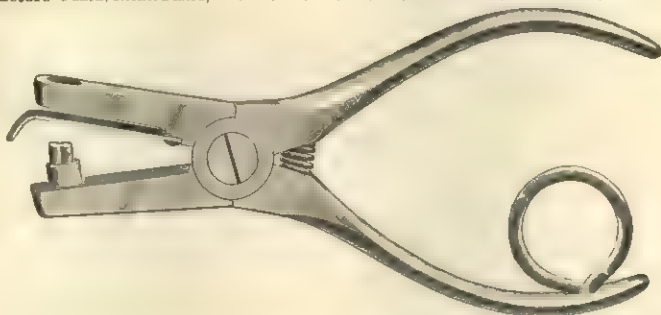
CONDUCTORS' AND TICKET PUNCHES.



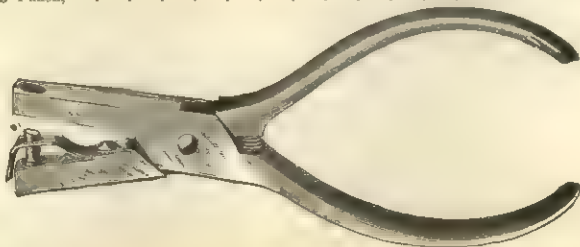
No. 1—Conductors', Nickel Plated, Single Dies, ... Per Dozen, \$24 00



No. 2—Conductors' Punch, Nickel Plated, ... Per Dozen, \$13 50



No. 3—Conductors' Punch, ... Per Dozen, \$18 00



No. 6—Ticket Punch, Cheap Punch for use in Restaurants, Etc., ... Per Dozen, \$8 50

SCREW AND BOLT CASES.



SCREW CASE.



BOLT CASE.

SCREW AND BOLT CASES HAVE IRON STANDARDS, SCREWED FIRMLY INTO AN IRON RIB IN THE BOTTOM, WHICH MAKES THEM PERFECTLY TRIF AND SOLID. THE TOPS AND BOTTOMS ARE DOUBLED WITH THE GRAIN OF THE WOOD CROSSED, GLUED AND SCREWED TOGETHER, AND BRAIDED WITH IRON RODS, WHICH BIND THE WHOLE FIRMLY TOGETHER, THIS MAKING IT STRONG ENOUGH TO BEAR THREE TIMES THE WEIGHT THAT CAN BE PUT INTO THEM, AND BY WHICH MEANS THEY REMAIN PERFECTLY TRIF AND EASY. BOTH BOLT AND SCREW CASES ARE MADE OF THE BEST SEASONED TENNESSEE POPLAR, FINISHED IN IMITATION OF CHERRY. THE FRONTS OF DRAWERS ARE MADE OF THE BEST NORWAY PINE WITH THE SIZES WHICH THIS CONTAINS NICELY PRINTED. THE DRAWERS ARE ALL PROVIDED WITH STOPS TO PREVENT THEIR REMOVAL FROM THE CASE. EACH DRAWER HOLDS A PACKAGE OF BOLTS OR SCREWS OF THE SIZE AND NUMBER INDICATED ON THE FRONT OF THE DRAWER.

Nos.	1	2	3	4
No. of Drawers,	73	80	88	96
Height, inches,	33	36	39	42
Width, inches,	31	31	34	34
Each,	\$18.75	21.50	23.00	25.50

No. 1 Screw Case Contains: One-half inch, 3, 4, 5, 6, 7; Five-eighths inch, 5, 6, 7, 8; Three-quarter inch, 5, 6, 7, 8, 9; Seven-eighths inch, 7, 8, 9, 10; One inch, 6, 7, 8, 9, 10, 11, 12, 13, 14; One and one-quarter inch, 7, 8, 9, 10, 11, 12, 13, 14, 16; One and one-half inch, 8, 9, 10, 11, 12, 13, 14, 15, 16; One and three-quarter inch, 9, 10, 11, 12, 13, 14, 15, 16, 17; Two inch, 10, 11, 12, 13, 14, 15, 16, 17, 18; Two and one-half inch, 12, 13, 14, 15, 16; Three inch, 16, 18, 20, 22.

No. 2 Screw Case Contains the following sizes in addition to No. 1 Case: Three-eighths inch, 2, 3, 4; Five-eighths inch, 4; Three-quarter inch, 4, 10; Seven-eighths inch, 6, 11.

No. 3 Screw Case Contains the following sizes in addition to No. 1 Case: One-quarter inch, 1, 2; Three-eighths inch, 2, 3, 4, 5; Five-eighths inch, 4, 5; Three-quarter inch, 4, 10; Seven-eighths inch, 6, 11, 12; One inch, 15; One and one-quarter inch, 16; One and three-quarter inch, 17.

No. 4 Screw Case Contains the following sizes in addition to No. 1 Case: One-quarter inch, 1, 2; Three-eighths inch, 2, 3, 4, 5, 6; One half inch, 8; Five-eighths inch, 4, 9, 10, 11; Three-quarter inch, 4, 10, 11, 12; Seven-eighths inch, 6, 11, 12; One inch, 15, 16; Three and one-half inch, 16, 18, 20.

Size of Drawers for Nos. 1 and 2 Screw Cases: Front 6 1/2 inches, Height 2 1/2 inches, Depth 5 1/2 inches, Back 1 1/2 inches. Nos. 3 and 4 Screw Case: Front 7 1/2 inches, Height 2 1/2 inches, Depth 5 1/2 inches, Back 1 1/2 inches.

Nos.	1	2
No. of Drawers,	98	104
Height, inches,	80	85
Width, inches,	30	30
Each,	\$37.00	41.00

No. 1 Bolt Case Contains Tire Bolts: Three-sixteenths inch, 1 1/2, 1 1/2, 1 1/2, 2, 2 1/2, 2 1/2, 2 1/2, 3; One-quarter inch, 1 1/2, 1 1/2, 2, 2 1/2, 2 1/2, 2 1/2, 3; Five-sixteenths inch, 2, 2 1/2, 2 1/2, 2 1/2, 2 1/2, 3, 3 1/2, 3 1/2, 4, 4 1/2, 4 1/2, 5, Five-eighths inch, 1 1/2, 1 1/2, 2, 2 1/2, 2 1/2, 2 1/2, 3, 3 1/2, 3 1/2, 4, 4 1/2, 4 1/2, 5, 5 1/2, 5 1/2, 6; Three-eighths inch, 2, 2 1/2, 2 1/2, 2 1/2, 3, 3 1/2, 3 1/2, 4, 4 1/2, 4 1/2, 5, 5 1/2; Seven-eighths inch, 2, 2 1/2, 3, 3 1/2, 4, 4 1/2, 5, 5 1/2, 6, 6 1/2, 7, 8, 9, 10; One-half inch, 2, 2 1/2, 3, 3 1/2, 4, 4 1/2, 5, 5 1/2, 6, 6 1/2, 7, 8, 9, 10, 11, 12.

No. 2 Bolt Case Contains the following sizes of Carriage Bolts in addition to No. 1 Case: Seven-sixteenths inch, 7 1/2, 8 1/2, 9 1/2; One-half inch, 7 1/2, 8 1/2, 9 1/2.

Sizes of Drawers for Nos. 1 and 2 Bolt Cases: Front 8 1/2 inches, Height 3 1/2 inches, Depth 7 1/2 inches, Back 1 1/2 inches.

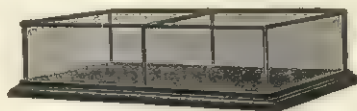
SHOW CASES.



No. 23.

OVAL FRONT, OAK CASE, HEIGHT $18\frac{1}{2}$ INCHES, WIDTH 27 INCHES, SMALL BASE MOULDINGS, MIRROR-LINED SLIDE DOORS, DSAA GLASS BEDDED IN PUTTY AND FASTENED WITH MOULDINGS.

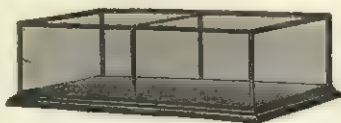
No. 23,	Sizes, feet,	3	4	6	8
	Weight Each, pounds,	87	76	114	152
	Each,	\$6.08	10.20	13.00	17.00



No. 21

SQUARE FRONT, OAK CASE, HEIGHT $18\frac{1}{2}$ INCHES, WIDTH 27 INCHES, SMALL BASE MOULDINGS, HARDWOOD BACK, PINKET SLIDE DOORS, FULL SIZE MIRROR, DSAA GLASS BEDDED IN PUTTY WITH MOULDINGS.

No. 21,	Sizes, feet,	3	4	6	8
	Weight Each, pounds,	87	76	114	152
	Each,	\$6.50	9.72	13.30	17.24

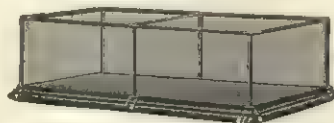


No. 40.

EXTRA HIGH SQUARE CASE, PLAIN CORNERS, EXTRA HEAVY MOULDINGS, DSAA GLASS, FULL SIZE MIRROR SLIDE DOORS, OAK WOOD, 38 INCHES WIDE AT BASE.

No. 40 -									
Sizes, feet,		3	4	5	6	7	8	10	
15 in. High, Each,	\$7.30	10.26	11.56	14.02	16.04	18.84	24.18		
17 in. High, Each,	7.92	10.73	12.16	14.70	16.72	19.90	25.38		
19 in. High, Each,	9.28	12.50	13.92	16.36	19.30	22.64	28.20		
21 in. High, Each,	9.70	13.30	15.04	17.90	21.28	23.78	31.18		

Cases 15 and 17 inches High Weigh 18 to 20 Pounds per Foot,
19 and 21 inches Weigh 20 to 22 Pounds per Foot.

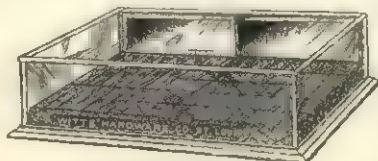


No. 41.

EXTRA HIGH SQUARE CASE, HIGHLY POLISHED METAL CORNERS, EXTRA HEAVY MOULDINGS, DSAA GLASS BEDDED IN PUTTY, FULL SIZE MIRROR SLIDE DOORS, OAK WOOD, 28 INCHES WIDE AT BASE.

No. 41 -									
Sizes, feet,		3	4	5	6	7	8	10	
15 in. High, Each,	\$10.44	13.54	14.80	17.92	20.48	22.72	27.12		
17 in. High, Each,	11.02	13.82	15.26	18.58	21.12	23.78	28.64		
19 in. High, Each,	12.36	15.60	17.18	20.74	23.68	26.50	32.06		
21 in. High, Each,	12.82	16.40	18.30	21.76	25.14	27.60	35.04		

Cases 15 and 17 inches High Weigh 18 to 20 Pounds per Foot,
19 and 21 inches Weigh 20 to 22 Pounds per Foot.



SHEFFIELD CUTLERY CASE

SHEFFIELD CUTLERY CASE IS MADE 17 INCHES HIGH OUTSIDE, HAS A RAISED PLATFORM INSIDE OF CASE FOUR INCHES HIGH, TOP DIVIDED INTO SPACES FOR CUTLERY AND ENTIRE PLATFORM IS COVERED WITH RED SILK PLUSH, MAKING A RICH AND BEAUTIFUL EFFECT, TWO SLIDING DOORS IN BACK FITTED WITH FULL SIZE MIRRORS AND BELOW DOORS TWO DRAWERS SLIDING UNDER PLATFORM. DRAWERS ARE DIVIDED INTO COMPARTMENTS TO KEEP STOCK OF CUTLERY CORRESPONDING WITH SAMPLES ABOVE.

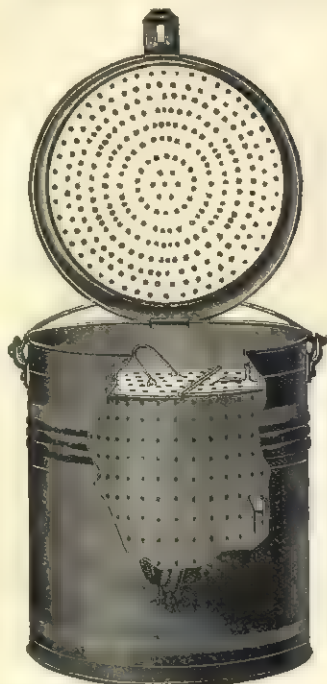
Sheffield Cutlery Case, $4\frac{1}{2}$ Feet Long, 2 Drawers, Cutlery and Shears, Weight about 60 pounds, . . . Each, \$25.00

DIRECTIONS FOR UNPACKING SHOW CASES.

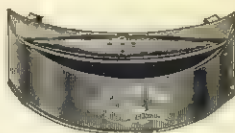
Take screws out of bottom of cross cleats; turn box on edge so door side is towards floor; then turn box over so cases set on floor and then lift box off of case.

MINNOW BUCKETS.

BAIT BOXES.



No. 35—Extra Large Minnow Bucket.
Size, 14 inches Diameter, 14 inches High, Capacity, 32 Quarts. Each, \$9 50
Larger Sizes Made to Order.



No. 80—Crescent.
Large, Per Dozen, \$3 00



No. 81—Basket.
Per Dozen, \$2 00



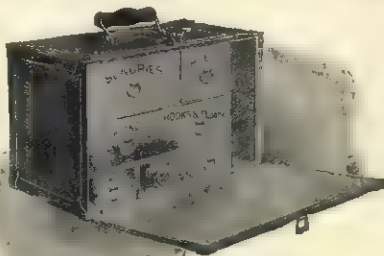
No. 82—Padlock.
Per Dozen, \$1 80



No. 83—Oval.
Per Dozen, \$1 80

Packed (One Dozen in a box).

ROBSON FISHING TACKLE CABINET.



No. 90.—Tackle Cabinet. Size, 9 $\frac{1}{4}$ inches High, 7 $\frac{1}{4}$ inches Wide, 12 $\frac{1}{4}$ inches Long. Made of extra heavy tin-plate and in a substantial manner, re-inforced corners, which insures against denting or breakage; handsomely ornamented in dark maroon color, gold striping and ornaments. Each, \$10 00

Packed One in a case for shipment.

MINNOW BUCKETS.



ROUND MINNOW BUCKET.
COMBINATION, FLOATING OR SINKING.

No. 24,	{ Quarts,	8	12
	{ Per Dozen,	\$34.00	30.00



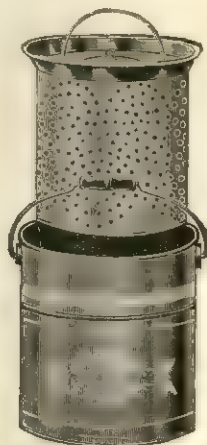
OVAL MINNOW BUCKET.
COMBINATION, FLOATING OR SINKING.

No. 25,	{ Quarts,	10	12
	{ Per Dozen,	\$38.00	34.00



MINNOW BUCKET AND TRAP.

No. 26—Minnow Buckets and Traps, 12 quarts,
with sunk iron-pan Top, Complete,
Per Dozen, \$34.00



ROUND MINNOW BUCKET.

No. 28,	{ Quarts,	6	8	10	12
	{ Per Dozen,	\$9.00	10.50	12.00	14.00



MINNOW TRAP.

No. 27—Minnow Traps only, Galvanized. Hinged
Cover and Screw Stopper, Per Dozen, \$22.00



INDIVIDUAL MINNOW BUCKET.

No. 29,	{ Quarts,	1	2
	{ Per Dozen,	\$3.00	4.00

Will You Stand Still or Move Forward?

Are you a Rip Van Winkler or an "Onward-and-Upwarder?"

Have you applied for the Royal Agency, or

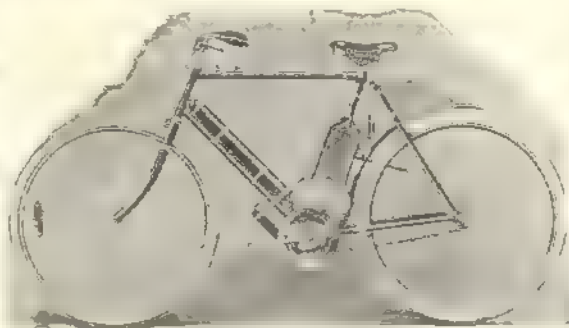
Are you simply Wishing and Waiting for Something to Turn up?

Making due allowances for "the craze" have you ever asked yourself why people do not purchase bicycles as freely as of yore? If so, what conclusion have you reached?

Is it not a fact that the chief reason is that there is nothing new in pedal propelled bicycles for people to purchase—nothing for them to see or to learn to talk about or for the newspapers to write about and thus arouse new interest?

Do you know of anything better calculated to achieve that result than this?

The agent who
first gets a Royal,
learns it and
enthusiases his trade,
will be the most
successful agent
in his city.



On looks alone,
leaving out our
many special
features, the Royal
will outsell any
machine on the
market ten to one.

ROYAL MOTOR BICYCLE
"As good as it looks"

Do you know of anything that will create more talk or give the riders newer and more exhilarating sensations and experiences? Do you know of any device that removes the first objection to cycling—that muscle-straining, lung-stricking, perspiration-causing climbing of hills and "locking" of head wheels? Do you know of anything else that transforms such work into such pleasure? Do you want to say that there are not hundreds of people in your town to whom such a bicycle will appeal? Do you know of any better time than now to set about arousing their interest?

In short, are you a Rip Van Winkler—a "waiter" and "wisher," or are you of the up-and-coming class—the class that knows a good thing when it sees it and seeing it gets hold of it on the double quick—the class that looks to the future instead of wasting regrets on the past?

If you are of this class we want to sell you!

Our proposition cannot but appeal to you!

Do not lose this opportunity!

ROYAL MOTOR WORKS
CHICOPEE FALLS, MASS.



Auto Storage and Repair Co.'s Emergency Repair Wagon

ground. All vehicles are stored on ground floor. They are also equipped with oxygen and hydrogen gases for burning lead accumulators in batteries. For starting engines they have a 100-horsepower compressor so that they can blow out a business' motor direct from reserve tank. They have an especially arranged gas stove for heating torches. All water used for steam engines passes first through a filter and then to the reserve tank from which the engines are filled.

They carry a full line of automobile parts and fittings.

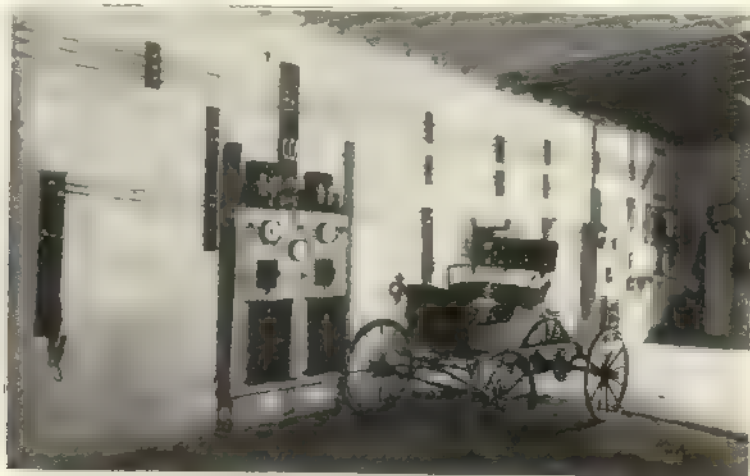
They also keep on hand all kinds of supplies, including motor oil, engine oil, motor grease, gear grease, etc.

Their methods are very thorough. Vehicles left for repair and those on storage are rigidly examined and skilled experts attend to the work of repairing and overhauling, each class of vehicle being looked after by a specialist.

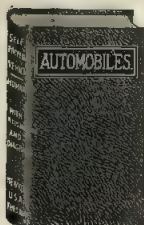
They have an emergency repair wagon to take accidents and break-downs. This wagon is equipped with tools and parts for various classes of vehicles.

EASY TO MEND

The G. & J. Tire Co., Indianapolis, Ind., have installed a very attractive wall picture. The illustration shows a young lady looking at a bicycle store while a young man is engaged in repairing the tire. Evidence of the truth of the subscription "G. & J. Tires for Bicycles and Automobiles are Easy to Mend" is seen in the faces of the couple thus engaged; for there is no sign of worryment or trouble in their countenances. They are evidently accustomed to using G. & J. tires and anticipate no trouble with them.



Auto Storage and Repair Co.'s Charging Station, No. 1



A timely book on easy terms of payment, to the Patrons of the American Machinist.

Self-Propelled Vehicles

By J. E. HOMANS, A. M.

This valuable volume, made up of 4 chapters, 100 figures and 100 illustrations and diagrams, strongly and handsomely bound in red cloth, is now issued. It contains a full and complete description of motor vehicles, electric and gas. The present state of the art is fully explained, and the latest improvements of motor vehicles are fully described. It is a book that will be of great value to engineers, inventors, and all interested in any way in automobiles.

Special Offer. "Self-Propelled Vehicles" will be sent to patrons of the American Machinist for a monthly payment of one dollar. The book will be delivered express, prepaid, when receipt of order and one dollar to cover first payment (see coupon).

Under to-day!! Fill out coupon, enclose one dollar and the book will be sent express prepaid.

Theo. Audel & Co.

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Coupon, AMERICAN MACHINIST, CUT OUT

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Address _____

I will order as to my receipt of it.

The "Other Side"

of our Duplex No. 12 Imp. Machine is perfectly plain, allowing the tool to be placed against a wall if necessary. All operations are performed from the opposite side.

This view also shows the heavy steady slides and cutting-off tool.

**Bignall & Keeler Mfg. Co.**

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12, 14 and 16 in. swing. Both screw and rod as well as power cross feed. Gears furnished to cut standard threads from 8 to 40. Furnished on special order with Schellenbach Screw Cutting and Feeding Attachment, giving any standard thread from 4 to 40 instantly. Steady and follower rests, large and small face plates, and countersinks with each lathe. Gap beds without extra charge.

When You Have Work

that must be almost absolutely accurate, yet well within the limits as to cost, put it on a "Sebastian." That's what the "Sebastian" is for and what a lot of people are using it for in good shops all over the world. The "Sebastian" is a cost cutter and a particularly profitable proposition on light manufacturing. We've a Book about it.

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No. 20—Plano Convex, Tempered Steel Nickel Plated Frame, ... Per Dozen, \$2 50

Packed Assorted Dozens $\frac{5}{16}$, $\frac{9}{16}$, $\frac{10}{16}$.



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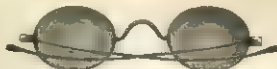
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SCENERY SPECTACLES.



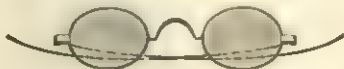
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EYE GLASSES.



No. 100.

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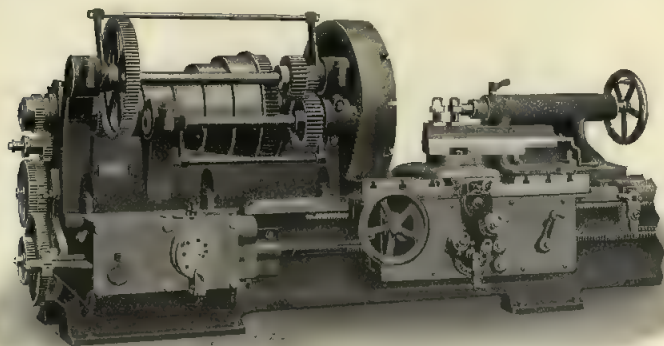
No. 110.

No. 110—Eye Glasses, Coquille, Steel Blued Frame Assorted Smoke, Blue and Green, ... Per Dozen, \$4 00

A Dozen Eye Glass Cords are Included with Each Dozen Eye Glasses.

Lathes of Quality

Having special design for heavy duty and for meeting the requirements of Improved Tool Steel.



The Schumacher & Boye 36-inch Triple Geared Engine Lathe

Made to meet modern Improved Tool Steel requirements and to handle the heaviest kind of work rapidly and with extreme economy. Some few of the details of this lathe are here given merely to afford an idea of the careful consideration that has been given to all parts: Has instantaneous change device for feeds and screw cutting; box apron, preventing overhang and straining of pinions and studs; power angular feed of 12 in. travel to compound rest.

The dimensions here following will serve to show how metal has had careful distribution and how bearings have had attention.

HEAD STOCK:

Length of Bearing on Shears . . . 4 ft. 4½ in.
Width of Belt 5 in.
Length of Spindle (over all) . . . 5 ft. 7¾ in.
Ratio of Triple Gear 49 to 1.
Bed Width (over all) 31¾ in.

CARRIAGE:

Length of Bearing on Shears 48 in.
Width of Bearing, Comp Rest Bottom Slide, 14 in.

TAIL STOCK:

Length of Bearing on Shears 26 in.
Spindle Diameter 4 in.
Spindle Length (over all) 29 in.

Steady Rest, 3 Jaws, takes in 9¾ in.
" " 4 " " " 16¾ in.

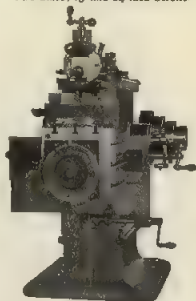
Schumacher & Boye, Cincinnati, O., U.S.A.

FOR THE TOOL ROOM

Here's the smartest, most efficient and convenient Slipping Machine on the market. Equipped with several universal features which are entirely its own, greatly enhancing its value and increasing its scope of usefulness.

Circular tells the whole story—and it's sent free for the asking.

Two Sizes, 15 and 24-Inch Stroke



15 Inch Size

Potter & Johnston Machine Co.
Pawtucket, R.I., U.S.A.

Save the Oil,

The Dollars will Take
Care of Themselves.



Put your used oil into the Cross Filter. The Cross Filter will refine it and hand it back to you ready for use again. Keep doing this until there is no oil left.

You can save at the very least 50% on your oil costs thro' the use of the Cross Filter, and oftentimes you'll have better oil after it has been filtered.

In order that you have a chance to demonstrate this saving, we'll put a Cross Filter into your shop on trial for thirty days. If it doesn't, send it back. There are no strings to this proposition. If you don't want it, you don't want it, and we won't worry you to death trying to convince you that you are wrong. Catalog on request.

THE BURT MFG. COMPANY,

255 Main St. Akron, O., U.S.A.

Largest Manufacturers of Oil Filters in the World.

A complete stock of our Filters is carried by Shelby & Co., London, E.C. Sole Agents for Great Britain

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Lest ye be deceived. There's nothing in it except by the rarest chance

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The one-time ad. has no more chance against the every week or every month ad. than the salesman who makes but one call has against the salesman who comes early and often

Don't advertise at all till you can go in to win—till you can spend enough money to make it pay. Then concentrate your fire—pick the good papers, use good copy, spend your advertising money where it will do you the most good

This doesn't necessarily mean a full page in every issue, though more and more of our advertisers are using pages. It does mean a space large enough in which to say your say in a telling way, and, often enough to show that you're very much alive and "dead in earnest" in your efforts to get business.

We're ready, right now, to introduce you to more than 15,000 of the best people you could meet in a lifetime, if you make machine tools and kindred things and want to sell them.

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People Who Use
The "Cincinnati"
Upright Once
Always Come Back
For More

when the need for a larger
upright drill equipment
becomes necessary. This

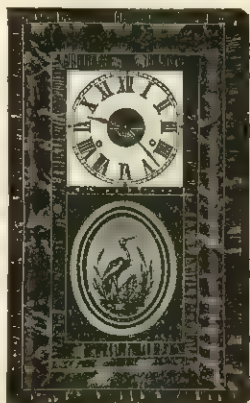
is one thing going to prove their excellence.

Just because no user of drills will go blindly and make second and third orders for these drills unless there's something to warrant it. We believe that your best interests will be conserved thro' the use of these drills, and further believe that you will be negligent of your own good by not sending for our new catalog



Cincinnati Mach. Tool Co.
Western Avenue
and Dayton Street
Cincinnati, O., U.S.A.

O. G. CLOCKS.



SETH THOMAS, O. G. WEIGHT.

ROSEWOOD AND WALNUT VENEER, POLISHED.

No. 1/T—Seth Thomas, 1-Day, Weight, Strike,
7½-inch, 8-inch Dial, Height 23 inches. Each, \$7 60

No. 2/T—Seth Thomas, 8-Day, Weight, Strike,
8-inch Dial, Height 26½ inches. Each, 12 00
For Alarms, Add 70 cents to List.



WATERBURY, O. G. WEIGHT.

VENEERED.

No. 1/W—Waterbury, 1-Day, Strike, with Weights,
8-inch Dial, Height 26 inches. Each, \$5 10

No. 2/W—Waterbury, 8-Day, Strike, with Weights,
8-inch Dial, Height 30 inches. Each, 7 90
For Alarms, Add 50 cents to List.

OFFICE CLOCKS.



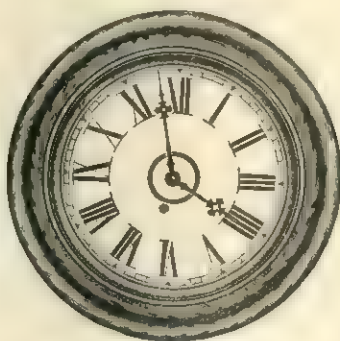
NOS. 40 AND 41, OFFICE CLOCK.

OAK OR VENEERED, 12-INCH DROP, OCTAGON.

No. 40—Waterbury, 8-Day, Time, 12-inch Dial,
Height 34 inches. Each, \$5 50

No. 41—Waterbury, 8-Day, Half Hour Strike, 12-
inch Dial, Height 34 inches. Each, 6 50

GALLERY CLOCKS.



MILFORD GALLERY CLOCK

OAK OR WALNUT, 12-INCH DIAL.

No. 50—Milford, 8-Day, Pendulum Time. Each, \$5 50

No. 51—Milford, 8-Day, Pendulum Strike. Each, 6 50

ALARM CLOCKS.



STANDARD.

Standard Alarm Clocks—Nickel Plated, 4-inch
Dials, Alarm Dials on Back, . . . Each, \$1 15



PIRATE.

Pirate Alarm Clocks—Ansonia Clock Co., Nickel
Plated, 4-inch Dials, . . . Each, \$1 35
Sunrise Alarm Clocks—Waterbury Clock Co.,
Nickel Plated, 4-inch Dials, . . . Each, 1 40

ALARM CLOCKS.



REPEATER.

Repeater Alarm Clocks—Ansonia Clock Co., 5-
inch Dials, 1-Day Time Alarm, Duration of
Alarm 15 Seconds, Stops 15 Seconds, and then
Alarm 15 Seconds, and so on, for 25 Minutes,
Until Shut Off, . . . Each, \$2 35

CARRIAGE CLOCKS.



JOKER LEVER.

No. 1/A—Joker Lever Clocks, Seth Thomas, Gold
Gilt Fronts and Handles, Nickel Plated
Frames and Glass Sides, Height 7 inches,
3-inch Dials, 1-Day Alarm, . . . Each, \$3 60
No. 1/B—Joker Lever Clocks, 1-Day Strike, Other-
wise Same as No. 1/A, . . . Each, 3 95

THE MOST POWERFUL HEADLIGHT
FOR CYCLES AND AUTOMOBILES

SOLAR LAMPS

THE
1902

Line of Acetylene
and Oil

SOLAR CYCLE AND AUTOMOBILE' LAMPS

Our most complete and includes many popular patterns. Our automobile headlights are very powerful and absolutely reliable. Our cycle lamps are too well and universally known to require any description. Have you seen our oil lamp with bracket attachment for steam vehicles, for illuminating water gauges? It is a most convenient and satisfactory lamp for this purpose.

SOLAR Autochous are up to SOLAR standards. Don't be deceived with worthless imitations and experiments. Insist upon having SOLARS. They show the way and always satisfy.

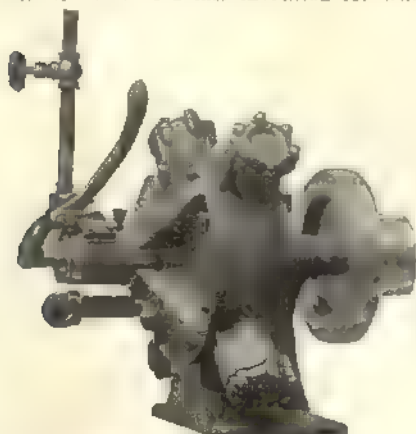
We are now mailing our new Catalog and if you have not received one a postal will bring it to you.

BADGER BRASS MFG. CO.

KENOSHA, WIS.

THE LEONARD ROTARY VALVE STEAM ENGINE.

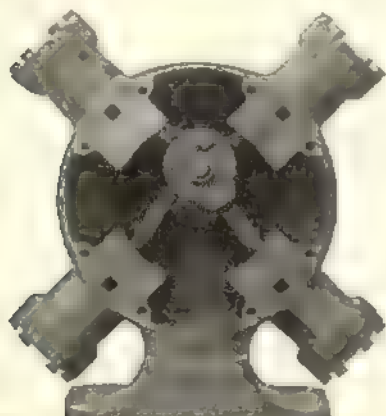
The Leonard Engine Co. has on exhibition on the basement floor of the Bourse Building, Fourth, below Market street, Philadelphia, Pa., a Leonard Rotary Valve Steam Engine, which is a late invention for wheel.



Leonard Improved Steam Engine.

patent has been granted. It is designed to meet certain requirements where high speed and light powers are an advantage, and is particularly adapted to automobile use. It is very compact and strong and no working parts are exposed.

The most important feature of this engine is its simplicity, as there are very few parts, all of which are easy of access. There are only two places that require packing. The frame, cylinders and bearings are all cast in one piece. There are four cylinders, single acting, set at right angles to the crank shaft, which is made of a solid piece of steel. Four pistons with connecting rods are attached to an ingenious centre bearing on the crank shaft, which runs in oil inside the frame casing. Owing to the arrangement of the cylinders the strain on crank pin is constant, as one cylinder is under pressure while the one at right angles is exhausting.



Leonard Steam Engine Valve Gear.
Improved



Controller of the Leonard Steam Engine

The valve gear is of the rotary type and very simple. It is operated by a dash. The valve is controlled by a lever having a ratchet stop, and by this arrangement the motion of the crank shaft can be reversed from right to left, slowed down, or stopped; also by this same movement a variable cut off is obtained. This is a great advantage on launches or automobiles, as the engine is always under the control of the operator. The operation is as follows: Steam is admitted to the side of valve frame, passing through ports in valve to the top of the cylinders and is exhausted back through the same valve to an exhaust chamber in the valve casing, thence to the exhaust pipe.

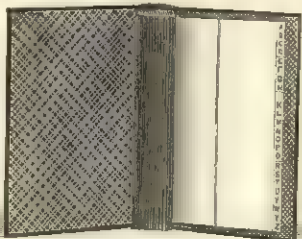
All wearing parts are bronzed bushed and can easily be replaced. No attention is required to run this engine other than to keep the oil cups filled. There are no rods to knock up, no knocking of moving parts inside the casing, as in engines of this class, and the most interesting feature is that it starts at once at any point, either right or left, at the will of the operator. It is compact, strong and light of weight.

OUR CHICAGO SHOW NUMBER.

The "Chicago Show Number" of "The Cycle and Automobile Trade Journal," which will be issued on March 1, will contain a complete forecast of the exhibits, and this issue will be liberally distributed from space. No. 34. Provision has also been made for the display and distribution of the catalogues of our advertisers. These catalogues will be arranged upon a large table so that visitors may select those they are interested in. This will be an innovation that will be appreciated by all who visit the show as well as by our advertisers.

National Sewing Machine Co., Belvidere Ill., have secured control of a new motor which appears to be a decided advance over anything yet produced and they are at work preparing tools, patterns, etc., in order to manufacture these motors and are also getting ready to turn out complete rigs. They have for some time past been testing and experimenting, and will, no doubt, take a prominent place in the industry when they get launched.

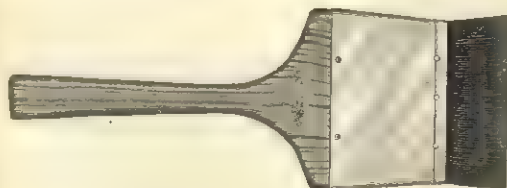
GUMMED STUB FILES.



Nos. 26 AND 17, GUMMED STUB FILE.

No. 26 250 Stubs, for Letters, 6 x 9 inches, Leather Back and Corners, Cloth Sides, . . . Per Dozen, \$11 50
 No. 17 250 Stubs, for Invoices, 9 x 13 inches, Leather Back and Corners, Cloth Sides, . . . Per Dozen, 15 00

COPYING BRUSHES.

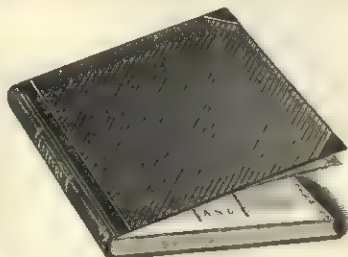


CAMEL'S HAIR COPYING BRUSH.

BEST QUALITY OF HAIR IS USED, BRUSHES ARE FULL,
 BOUND IN TIN, WITH CEDAR HANDLES.

3 -inch Copying Brushes, . . . Per Dozen, \$3 60
 3½-inch Copying Brushes, . . . Per Dozen, 4 00

LETTER COPYING BOOKS.

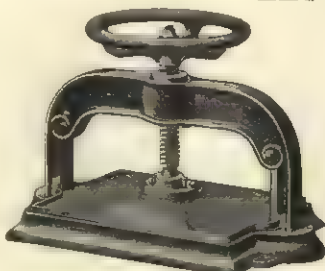


Nos. 500 AND 700, COPYING BOOK.

CLOTH SIDES, LEATHER BACK AND CORNERS, EXTRA
 QUALITY WHITE GLAZED PAPER, FULL INDEXED,
 INTERLEAVED WITH BLOTTING PAPER.

No. 500—Letter Size, 9 x 11 inches, 500 pages, . . . Each, \$1 60
 No. 700—Letter Size, 9 x 11 inches, 700 pages, . . . Each, 2 00

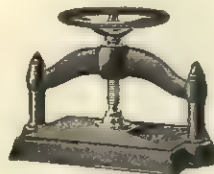
LETTER PRESSES.



STANDARD.

WITH WHEEL, FINISHED IN PLAIN BLACK

Standard,	No. 4	5
	To Receive Book, inches, 10 x 12 x 3	10 x 15 ½ x 3
	Weight, pounds, . . . 55	71
Each,	\$5 00	6.00



STYLE C.

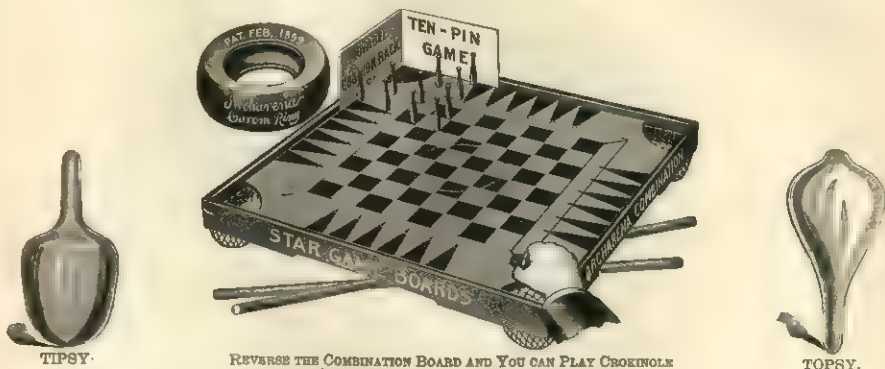
WITH WHEEL, FINISHED IN PLAIN BLACK.

Style C, Column Press,	No. 8 C
	To Receive Book, inches, 12 x 11 ½
	Weight, pounds, . . . 33
Each,	\$13.75

PARLOR GAMES.

STAR ARCHARENA COMBINATION BOARDS.

NEW STYLE, ELEGANT MAHOGANY FINISH.



TIPSY.

TIPSY.

REVERSE THE COMBINATION BOARD AND YOU CAN PLAY CROKINOLE AND OTHER GAMES. PATENTED CUSHION BACK.

No. 1 - 24 inch Star Archarena Board, 50 Games, packed 4 dozen in case, weight 80 pounds

Per Dozen, \$40 00

No. 2 - 28 inch Star Archarena Board, 55 Games, packed 4 dozen in case, weight 100 pounds,

" 54 00

ON THE NO. 2, 28-INCH ARCHARENA BOARD 55 GAMES CAN BE PLAYED, AS FOLLOWS:

- | | | |
|-------------------------------------|---|------------------------------|
| 1 Crokinole | 20 Game of Forty-Six | 38 Head Pin Four Back Circle |
| 2 Crokinola New 1901 | 21 Ditch Carrom Game | 39 Seven Up Spin |
| 3 Carromola New 1901 | 22 Flags of the Nations | 40 Spot Games |
| 4 Four-Pocket Carrom Game | 23 Seventh Century Game of Shovel Board | 41 Tipsy |
| 5 Walk-Around Carrom Game | 24 Game of Chess | 42 Topsy |
| 6 Ten Pins | 25 French Checker Board Layout | 43 Turvy |
| 7 Cocked Hat and Feather | 26 Checkers | 44 Long End Tipsy |
| 8 Cocked Hat | 27 Backgammon | 45 Tipsy Topsy Turvy |
| 9 American Nine Pins | 28 Russian Backgammon | 46 Half Minute Battle |
| 10 Five Back | 29 Double Entry Posting | 47 Long End Battle |
| 11 Head Pin and Four Back | 30 Single Entry Posting | 48 Spinning Battle |
| 12 Seven Up | 31 Spinnosa | 49 Three Minute Battle |
| 13 Five Pin Cuban Carrom Game | 32 Spinnette | 50 Cuban Battle Spin |
| 14 Shooting the Wild Ducks | 33 Ten Pin Top Game | 51 Diagonal Pins |
| 15 Billiardette | 34 Five Pin Cuban Top Game | 52 Pyramid Pins |
| 16 The Hawk and the Sparrows | 35 Three Pin Circle Game | 53 Half Orange Pins |
| 17 Pyramid Checkers | 36 Four Pin Circle Game | 54 Cushion Orange Game |
| 18 Diagonal Checkers | 37 Five Back Spin | 55 Triangle Top Game |
| 19 Childress, or Six Pin Point Game | | |

50 of the above games are played on the No. 1 board, all except Nos. 9, 23, 25, 29 and 30. No. cues on the No. 1 board.

ON THE NEW No. 2 ARCHARENA BOARD 55 DISTINCT GAMES, including all the above and the French Checker Board Layout, or by possible variations, 100 Games. All combined on one handsome Mahogany finished board, in elegant Marquetry, imitation of inlaid wood, and the beautiful game of Flags on Crokinole side. The handsomest board ever offered to the public.

CROKINOLA AND CARROMOLA.

The greatest games ever offered to the public, and found on no other Boards. Making an added value for the purchaser of from \$1.25 to \$2.00 on each board. Never before has so much been combined on one board, or offered to the public for the money.



PARLOR GAMES.

BAGATELLE.



EACH BOARD NICELY FINISHED AND
WARRANTED NOT TO WARP

CUT SHOWS No. C.
Size, 23 $\frac{1}{2}$ x10 INCHES.

- No. O—Size 12 $\frac{1}{2}$ x8 $\frac{1}{2}$ inches, one bell and covered with red or green; packed one dozen in package; weight, per dozen, 10 pounds, ... Per Dozen, \$1 80
- No. B 1 Size 19x9 inches, one bell, one star and three cups, hardwood frame polished, covered with red or green; packed one-half dozen in package; weight, per dozen, 20 pounds, ... Per Dozen, 4 00
- No. C—Size 23 $\frac{1}{2}$ x10 inches, two nickel-plated bells, two stars, four cups and brass numbers, oak frame polished, covered with red or green cloth; packed four in package; weight, per dozen, 30 pounds, ... Per Dozen, \$8 00
- No. E—Size 32x12 $\frac{1}{2}$ inches, three nickel-plated bells, two stars, five cups and brass numbers, oak frame polished, covered with red or green cloth; packed one in package; weight, per dozen, 45 pounds, ... Per Dozen, \$18 00

CROKINOLE.



CHECKER SQUARES ON REVERSE SIDE.

- No. 340—Size 28 inches in diameter, center finished in mahogany, ditch and rim in natural wood; 6 in crate; weight, 60 pounds, ... Per Dozen \$18 00
- No. 342—Size 30 $\frac{1}{2}$ inches in diameter. Same finish as No. 340. The best value on the market; 6 in crate; weight, 66 pounds, ... Per Dozen, \$24 00
- No. 345—Same as 342, but has frame and rim of finely finished hard wood; 6 in crate; weight, 75 pounds, ... Per Dozen, \$30 00

These boards for beauty, strength and finish have no equal; they are light yet strong, and will last for years. Only kiln dried lumber used and cannot warp; surface highly polished. Tips of solid rubber. All boards have checker squares on reverse side. Book of Rules and 24 hardwood discs with each board.

STAR SAFETY RAZORS IN CASES.



No. 1/J, JEWEL CASE.

No. 1/J—Jewel Case, Contains One Star Safety Frame and One Blade, put up in an Elegant Satin Lined Morocco Case.

Each, \$2 50



Cut Shows No. 2 S

Nos. 2/S to 5/S, STAR CASE.

CASE ELEGANTLY FINISHED IN MOROCCO AND SATIN LINED

- | | |
|--|--------------|
| No. 2/S—Star Case, Contains One Star Frame and Two Blades, ... | Each, \$3 50 |
| No. 3/S—Star Case, Contains One Star Frame and Three Blades, ... | Each, 4 50 |
| No. 4/S—Star Case, Contains One Star Frame and Four Blades, ... | Each, 5 50 |
| No. 5/S—Star Case, Contains One Star Frame, and Five Blades, ... | Each, 6 50 |



No. 2/T, TRAVELING CASE.

No. 2/T—Traveling Case, Contains One Star Safety Frame, with Two Perfectly Adjusted Blades of Fine Silver Steel; Box of Finely Perfumed Shaving Soap; Holder for Stropping and Honing Blades; Shaving Brush, Comb and Cosmétique; put up in an Elegant Satin Lined Morocco Case.

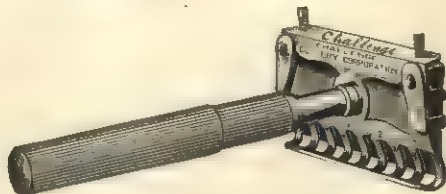
Each, \$6 00



No. 7/F, FAVORITE CASE

No. 7/F—Favorite Case, Contains One Star Safety Frame and Seven Blades. One Blade for Each Day in the Week. This Case is Especially Adapted to the Wants of those who find a Razor works Easier by Frequent Changing. It is a Very Elaborate and Handsome Affair, put up in Morocco Case Lined with Satin, Each, \$10 00

CHALLENGE SAFETY RAZORS.



Cut Shows Razor Ready for Shaving



Cut Shows Handle and Slide with Blade for Stropping

CHALLENGE SAFETY RAZOR.

EVERY RAZOR IS SET READY FOR USE.

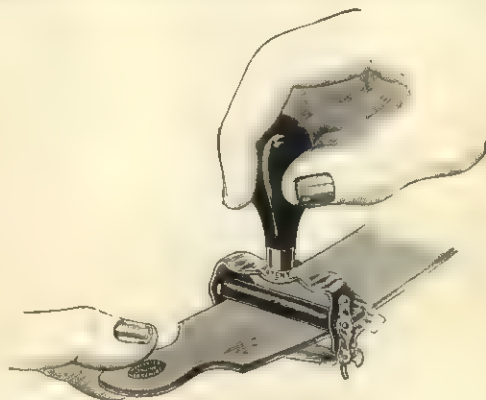
Challenge Safety Razors, ... Per Dozen, \$16 00

Packed Complete in an enameled tin box.

NOTE.—To REMOVE THE BLADE: Press aside the catch on either side of the frame, thus releasing the blade, which can then be lifted out.

Do not re-adjust the set screws unless the blade has been re-ground

CHALLENGE STROP AND STROPPING MACHINES.



CHALLENGE.

CAN BE USED WITH ANY SAFETY RAZOR.

Challenge Strop and Stropping Machines—Complete, ... Per Dozen, \$24 00

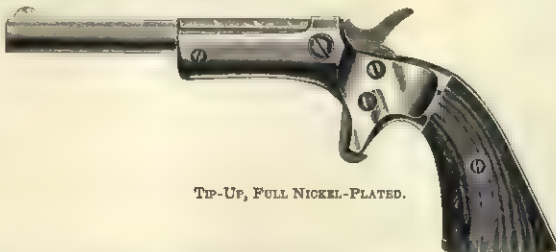
Packed Complete, One in a box.

NOTE.—Slide the blade into the frame holder and pass one end of the swing strop through the opening between the revolving slider and the frame holder, with the blade underneath see cut. By moving the machine forward and backward over the strop, with slight pressure, the blade is automatically reversed and stropped. The strop should be held taut. The coarse side of the strop should only be used when the razor is very dull.

STEVENS' GALLERY PISTOLS. RIM FIRE, SINGLE ACTION, WALNUT STOCKS.



DIAMOND MODEL, GLOBE FRONT AND PEEP SIGHTS, NICKEL-PLATED FRAME, BLUED BARREL.
No. 929-22 Long Rifle, 6 inch Barrel; weight, 10 oz., \$5 00
No. 930-22 Long Rifle, 10 inch Barrel; weight, 12 oz., 7 50



TIP-UP, FULL NICKEL-PLATED.

No. 931-22 Short Rim Fire, 3 1/2 inch Barrel; weight, 7 oz., \$2 50
The Tip-Up is a convenient little pocket pistol where it is desired to shoot at a mark at short ranges, say up to 15 or 20 yards; also for Ladies' use, and first lessons in pistol shooting.

REMINGTON DOUBLE DERRINGER.



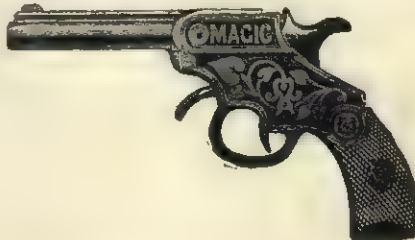
41 CALIBER, SHORT RIM FIRE, RUBBER STOCKS; WEIGHT, 11 1/2 OUNCES.
No. 932—Nickel-Plated, \$6 25
No. 933—Blued, 6 25

BLANK CARTRIDGE PISTOL.

BULL'S EYE REVOLVER



ROUND BARREL, SAW FRAME, ROUND RUBBER STOCKS
No. 934-22 Long Rim Fire, Plain Cylinder, \$1 50



MAGIC, SINGLE SHOT, ALL METAL, STEEL BARREL, NICKEL-PLATED, JAPANNED STOCKS.
No. 935-22 Blank Cartridge, 4 inch Barrel; weight, 10 oz., \$0 40

STEVENS' GALLERY PISTOLS.

RIM FIRE, SINGLE ACTION, WALNUT STOCKS, FINELY CHECKED.

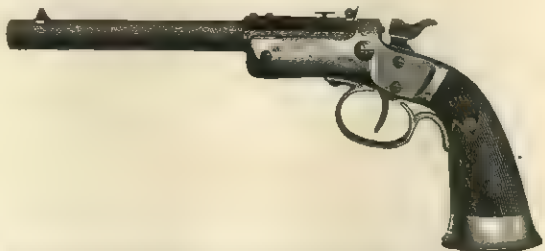
Stevens' Gallery Pistols have done the finest shooting known, and for years have been the standard of accuracy in the leading galleries of the world. Their accuracy with the 22 Long Rifle Cartridge is beyond what experts thought it was possible to secure with a pistol. With the Long Rifle Cartridge they are capable of work at 100 yards, almost equal to a rifle.



STEVENS-LORD MODEL PISTOL

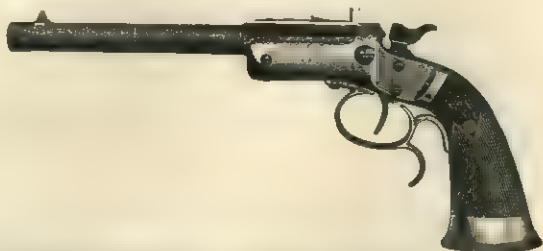
LORD MODEL, OPEN WIND-GAUGE REAR SIGHT AND BEAD FRONT SIGHT, HEAVY BUTT STOCK, SPUR TRIGGER GUARD, NICKEL-PLATED FRAME, GUARD AND BUTT, BLUED BARREL.

No. 924-22 Long R. flc, 10 inch Barrel; weight, 3 pounds, ... \$16 00



GOULD MODEL, OPEN WIND-GAUGE REAR SIGHT AND BEAD FRONT SIGHT, HEAVY BUTT STOCK, NICKEL-PLATED FRAME, GUARD AND BUTT, BLUED BARREL.

No. 925-22 Long Rifle, 10 inch Barrel; weight, 2 pounds, ... \$15 00
No. 926-22 Long Rifle, 12 inch Barrel; weight, 2½ pounds, ... 16 00

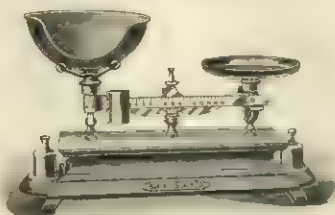


CONLIN MODEL, OPEN WIND-GAUGE REAR SIGHT AND BEAD FRONT SIGHT, HEAVY BUTT STOCK, SPUR TRIGGER GUARD, NICKEL-PLATED FRAME, GUARD AND BUTT, BLUED BARREL.

No. 927 22 Long Rifle, 10 inch Barrel; weight, 2 pounds, ... \$15 00
No. 928-22 Long Rifle, 12 inch Barrel; weight, 2½ pounds, ... 16 00

SCALES.

BUFFALO SCALE CO.



CONFECTIONERS' SCALE.

ELEGANTLY FINISHED, UPPER PARTS BRASS, NICKEL PLATED, MARBLEIZED BASE.
SCOOP WILL HOLD THREE POUNDS OF CANDY.

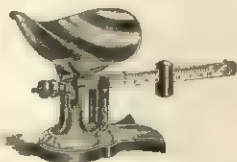
No. 694—With Side Beam,

Each, \$25 00

No. 695—Without Side Beam,

Each, \$25 00

Shipping Weight Each 40 Pounds.



TOBACCO SCALE.

WITH BRASS SCOOP.

No. 704—Capacity $\frac{1}{2}$ oz. to 1 lb., ... Each, \$5 50No. 706—Nickel Plated, Capacity $\frac{1}{2}$ oz. to 1 lb., ... Each, 6 75

Shipping Weight Each 15 Pounds.

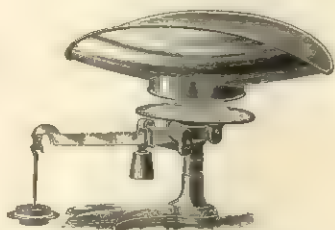


POSTAL SCALE

ADOPTED BY U. S. GOVERNMENT.

THESE POSTAL SCALES ARE HANDSOMELY FINISHED AND
ARE MADE TO WEIGH IN OUNCES. BUFFALO POSTAL
SCALES HAVE BEEN ADOPTED BY THE UNITED
STATES GOVERNMENT, AND ARE PARTICULARLY
ADAPTED FOR OFFICE USE.

Capacity.	Weight Each, pounds	Each. Each. Nickel Plated.
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No. 502— $\frac{1}{2}$ to 16 oz.	5	4 00 5 00
No. 504— $\frac{1}{2}$ to 34 oz.	10	6 00 8 00

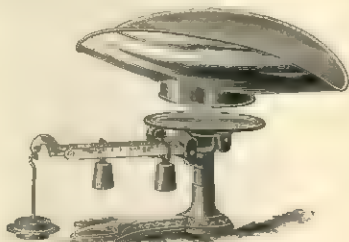


GROCERS' SCALE, SINGLE BEAM.

ESPECIALLY DESIGNED FOR WEIGHING GROCERIES.
CAPACITY ON BEAM 2 LBS. TO $\frac{1}{2}$ OZ.
NO SMALL LOOSE WEIGHTS.

Capacity.	Scoop.	Each.
No. 748— $\frac{1}{2}$ oz. to 62 lbs.,	Tin, Seamless.	\$12 00
No. 750— $\frac{1}{2}$ oz. to 62 lbs.,	Brass, Seamless,	13 50
No. 752— $\frac{1}{2}$ oz. to 62 lbs.,	Without Scoop,	10 50

Shipping Weight Each 60 Pounds.



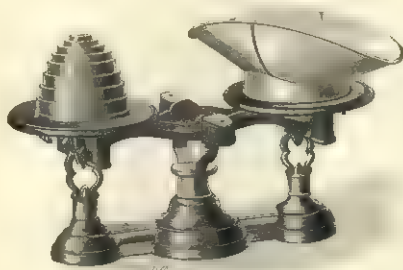
GROCERS' SCALE, DOUBLE BEAM

EACH BEAM HAS A CAPACITY OF 2 POUNDS BY $\frac{1}{2}$ OUNCE.
GRADUATIONS. NO SMALL LOOSE WEIGHTS ARE USED.

Capacity.	Scoop.	Each.
No. 754— $\frac{1}{2}$ oz. to 62 lbs.,	Tin, Seamless,	\$13 00
No. 756— $\frac{1}{2}$ oz. to 62 lbs.,	Brass, Seamless,	14 50
No. 758— $\frac{1}{2}$ oz. to 62 lbs.,	Without Scoop,	11 50

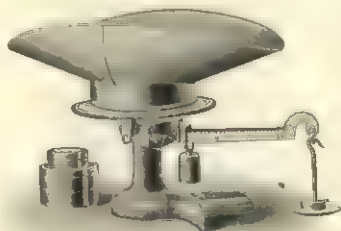
Shipping Weight Each 60 Pounds.

SCALES.



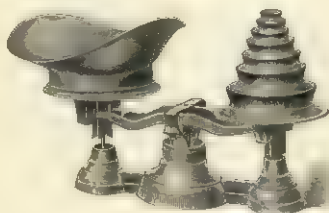
No 165, HATCH'S.

No. 165—Hatch's, Steel Bearings, Finished in Black, Striped, ... Each, \$5 00
Packed One in a box.



No. 25, LITTLE DETECTIVE.

No. 25—Little Detective, Capacity 25 lbs. x $\frac{1}{4}$ oz., Tin Scoop, Brass Beam, Finished in Black, Striped, . . . Each, \$3 50
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No. 1, TEA.

No. 1—Tea, Capacity $\frac{1}{4}$ lb. to 4 lbs., Jspanned, Tin Scoop, 2 Iron Plates, . . . Per Dozen, \$15 00
Packed One in a box.

SCALE WEIGHTS.



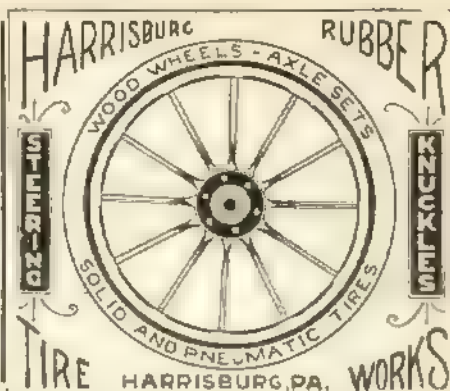
IRON SCALE WEIGHTS.

Sizes, $\frac{1}{4}$ oz. $\frac{1}{2}$ oz. 1 oz. 2 oz. 4 oz. 8 oz. 1 lb. 2 lb. 4 lb. 8 lb.
Each, \$0.15 .15 .15 .15 .15 .30 .30 .45 .75 1.35



It is better to meet a good article at first than to experiment with a doubtful one.

EASTMAN METALLIC BODY CO.
182 KINSMAN STREET CLEVELAND, OHIO



Highest Grade Motors as low as ordinary and untried imitations

Bicycle dealers and repairmen write THOMAS for special educational offer

QUALITY MAKERS

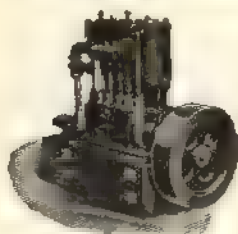
E. R. Thomas Motor Co.

Buffalo, N. Y.



The MOSLER VALVELESS ENGINES
For Automobile and Marine use

5 and 15 H. P. Double Cylinder, water cooled.
10 and 16 H. P. Four Cylinder, with one fly wheel
No valves, no troubles, ever ready, thoroughly balanced
Simple, durable, perfect workmanship, and H. P. guaranteed
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PALMER
Gasoline
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Launches

Stationary and Marine Motors

Two and Four Cycle 1 1/2 to 24 H. P.

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Lamson
Motor Bicycle

Bicycle complete, 2 H. P. Motor, \$75 Bicycle complete, 4 H. P. Motor, \$85.00. Also a complete set of parts with a 1/2 inch axle for the motor. Size of crank, 1 1/2 inch. All the other parts and blueprints, \$20.

THE LAMSON MACHINE CO.
22 Bright Street Abington, Mass.



THIS MOTOR is driving a 75 lb. automobile carrying 4 people up a 7 per cent grade on the 20 mile speed. We will show you. It weighs 44 lbs. complete cylinder valve chamber water chamber and head and cast in one piece. We set to work and in division. Write us.

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Chas. D. Smith, Secy
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AXLES
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CUPS
HUBS
WHEELS
RUNNING
GEARS

WE
MAKE

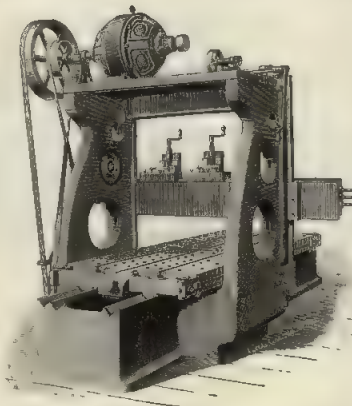
(AUTOMOBILE
AND
CYCLE
PARTS
FORGINGS
AND
CASTINGS)

EXPORT TRADE A SPECIALTY

REESE MACHINE AND TOOL WORKS
PLYMOUTH, PA.

We Will Hitch a Motor On

To any Cincinnati Planer, any make of Motor you say, and it will look and act as though it were a part of the tool, built especially for it. We're building two regular styles of Motor-Driven Planers. We've tested them with every known test and haven't found a single faulty feature. The Motors we use are of the slow speed type, corresponding to the usual speed of the planer countershaft and may be varied 50 per cent., at the will of the operator. This means the easy maintenance



of the highest possible speed at which the work in hand can be safely done, and greater profits than are possible on a belt-driven machine. The armature shafts are extended on each end to receive the driving and elevating pulleys. The large driving pulley is made extra heavy to serve as a fly wheel, so that there is practically no increase in current consumption at reversal of the planer. Why don't you drop a postal for our free Planer Book and get posted on our entire line?

The Cincinnati Planer Co., CINCINNATI, OHIO, U. S. A.

MODERN TOOL HOLDERS

That is to say, **Armstrong Tool Holders**, for **Lathe and Planer Work**, should be in use in **Every Modern Machine Shop**. They save **all** Forging and Tempering of **Lathe and Planer Tools**, 70 per cent. Grinding and 90 per cent. of **Tool Steel**. Another advantage is that **THE MEN PREFER THEM TO THE OLD FASHIONED FORGED TOOLS**, finding them more convenient and better in every way. Many men having once used **Armstrong Tools** buy a set with their own money in preference to going back to forged tools.

WITH THIS

Big, Strong, Drop-Forged Steel Holder, Case-Hardened, with Set Screw of Tool Steel Tempered on the Point and carrying a BIG Cutter of Armstrong Self-Hardening Steel,



Made in 22 sizes each; straight shank and right and left hand offset.

Patented Feb. 26, 1902, and patent pending.

You Can Increase your FEEDS and SPEEDS to Your Machine's full Capacity.

Write for New Catalog N.

Beware
of
Infringements.

ARMSTRONG BROS. TOOL CO.,

"The Tool Holder People"

CHICAGO, U.S.A.

PATENTS:
Feb. 16 1885, Feb. 20, 1891,
Mar. 28 1893, Apr. 18, 1894,
Nov. 22 1899, Jan. 22, 1901,
May 28 1902, May 27, 1903.
Or see catalog and list of

FOREIGN AGENTS: CHAS. NORTON & CO. Ltd., London; Van Nostrand, Bradburn, Glasgow; Schmitt & Söhne, Berlin; Threlkeld, New York; Pennington, Co., Rochester, N.Y.; Messrs. C. S. Christensen, Christiansburg; Alford & Hard-ware Co., Ltd., Toronto, Can.; Williams & Watson, Montreal, Can.

THE STANDARD TOOL CO.

TWIST DRILLS
REAMERS
GENERAL OFFICE & WORKS



**STANDARD
TOOL
CO.**

MILLING CUTTERS
HIGHEST QUALITY
CLEVELAND, O. U.S.A.

A TWIST DRILL STAMPED WITH THE **SHIELD TRADE MARK**

IS EVERYWHERE KNOWN AS

STANDARD

QUALITY ALWAYS DEPENDABLE.

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HAIRMAN TO WORK

Here's a Hard, Cold Business Proposition.

We'll put a Triplex Chain Block in your shop to be used by your own men in your own way, on your own work. It meets our claims and you believe that it's a good thing, send us a check for it. If it doesn't, send it back, charging us freight both ways.

Here's what a Triplex will do: One man with a Triplex Block will hoist more weight in less time and with less expenditure of energy than any two men with any other kind of a chain hoist. The Triplex cuts your hoisting costs in two. They pay for themselves in short order. The smaller ones if used an hour a day clear themselves from debt in six months, the larger ones in less time. Catalog tells all.

The Yale & Towne Mfg. Co.

9-11-13 Murray Street, New York.

Without Question

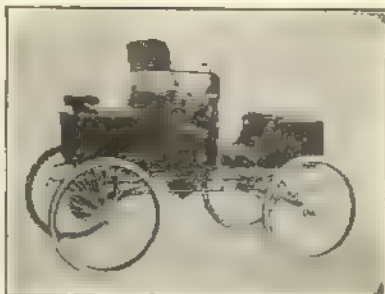
This is the most popular Water Tool Grinder on the market. Wheel 20" diameter, the handy size for all classes of tool grinding. Price, nearly as low as charged for the poorest machine on the market. It has many special features of advantage.



The Whitney Manufacturing Co.

Hartford, Conn., U. S. A.

London, A. C. W. Barton, Griffiths & Co., London
Paris, Barthelemy & Co., Paris
St. Petersburg, Worobich & Co., St. Petersburg



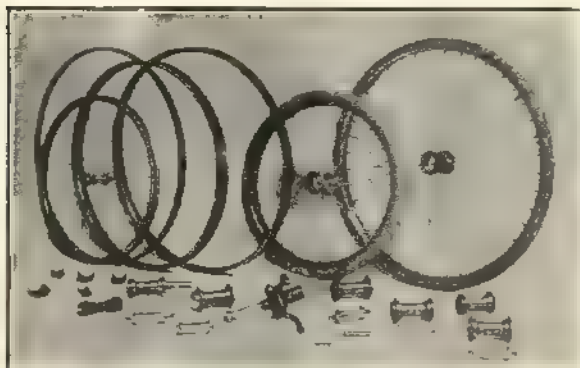
The Foster Wagon will last

indefinitely on good roads because it is built to stand rough usage on bad roads.

Our pocket rule is that standard times for the Endurance Contest

Official for the Chicago, New York, and Boston Races

FOSTER AUTO MFG. CO.
ROCHESTER - NEW YORK



AUTOMOBILE AND CARRIAGE WHEELS

**CRESCENT and FLAT BASE
STEEL RIMS**

I. A. WESTON CO.
SYRACUSE, N. Y.

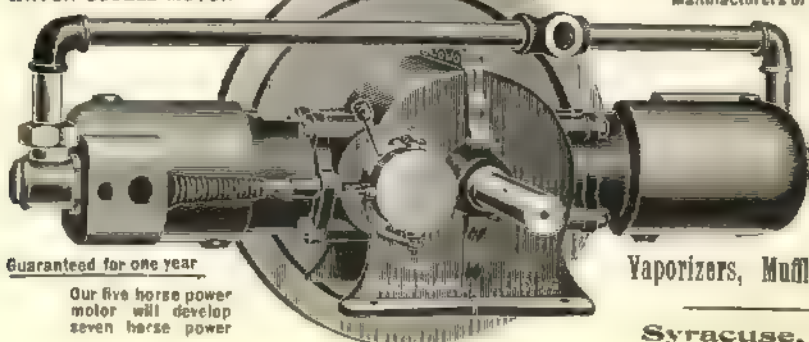
Write for Catalogue "D"



THE **CLARK**
DETACHABLE
AUTOMOBILE
TIRE
CHICAGO.
LAKESIDE BLDG.

Fits your Crescent rim, yet a detachable double tube tire. Before putting on new tires get our catalogue

THE BRENNAN WATER COOLED MOTOR



Guaranteed for one year

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BRENNAN MFG. CO
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Branches: Chicago, St. Louis, San Francisco.

On U. S. Battleships,
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Lake and River Boats, in High-Pressure
Power Plants, everywhere, you will find

LUNKENHEIMER REGRINDING VALVES



Extensively used. They have a record of high-class service. In service, if flame, guide, is rich in fuel, 24 and 30 psi working pressures. If you want them, write Lunkheimer, Inc., and see that name in case in shell is a guarantee without. Supplied by Dealers Everywhere.

Engineering Application of Valve
THE LUNKENHEIMER CO.
Sole Makers, CINCINNATI, U.S.A.
Branches - New York: 20 Cortland St.
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No. 4.

CRANE HARD METAL VALVES

Are heavier and better than the standard brass valves. Are made of CRANE HARD METAL, which is nearly as hard as steel and wears longer than any other bronze composition known. Also has a conical seat which some engineers prefer.

WRITE FOR POCKET CATALOGUE

CRANE CO.

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ESTABLISHED 1855

NEW YORK PHILADELPHIA KANSAS CITY OMAHA ST. PAUL SEATTLE LOS ANGELES SALT LAKE CITY
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Excelsior Straight-Way Back Pressure Valve.

This valve has no dash pots, springs, guides or complicated levers to get out of order. It is simple, reliable and well made. Never sticks, and can be relied upon at all times when using exhaust steam for heating; or when used as a relief, or free exhaust on a condensing plant, it has no equal. It is noiseless and free from any complicated attachments.

Jenkins Brothers, New York, Boston, Philadelphia, Chicago.
64 Walling St., Queen Victoria St., London, E. C.

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OF EVERY DESCRIPTION

Established 18 years.
Good and Correct Work
Guaranteed.
Let us estimate on your work.

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Ratchet & Rotary Counters

for vint machines, nickel-nit machines and automatic machinery generally, to register number of pieces or quantity produced for any purpose requiring a small, light and accurate instrument.

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Shepard Sells Satisfaction Every Time

Lathes, for power, 9" to 30" swing
Shapers, for power, 12" to 24" swing.
Drills, for power, 10" to 24" swing.
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**He Sells
A Tool.**
Catalog No. 12
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secured in the United States and foreign countries. Investigations as to novelty and validity. Litigation conducted in the Courts and Patent Office. Members of the bar of the United States Supreme Court and various Circuit Courts.

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21 Coast Pl., Washington, D.C. 425 Broadway, New York.

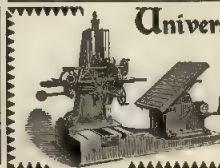


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REPAIR PARTS IN STOCK.
O. B. CHADWICK & CO., Portsmouth, N. H.

PATENTS

PROTECT YOUR IDEAS. Consultation free. Fee dependent on success.

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Universal Horizontal Drill.

Five sides of a cube can be drilled at any angle without re-chucking the work.

... Write ...

Detrick & Harvey Machine Co.,
Baltimore, Md., U. S. A.

LAWN TENNIS.

TENNIS BALLS.

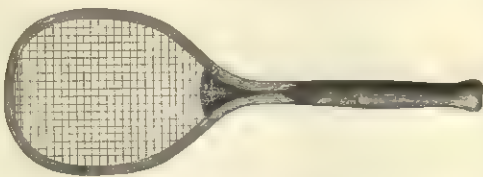


No. 350—VICTOR CHAMPIONSHIP.

No. 350—Victor Championship, the best, ... Each, \$8 00
 No. 350A—Victor Newport Finals. Carefully constructed throughout and of uniform quality, ... " 6 00

The Victor Championship Lawn Tennis Ball is made exactly in accordance with the specifications and requirements of the National Lawn Tennis Association as regards weight and size. In resiliency and durability it stands alone, the peer of all others. One trial will convince you that our ball is the best.

TENNIS RACKETS.

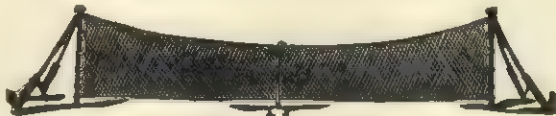


No. 351—VICTOR SPECIAL.

No. 351—Victor Special, ... Each, \$9 20
 No. 352A—Victor Collegiate, a first-class racket, ... " 5 70
 No. 354—Comet, a medium-priced serviceable racket, ... " 3 50

The Victor Special is made on a new and approved model, it is strung with the best English Gut and is unequalled for driving power and durability.

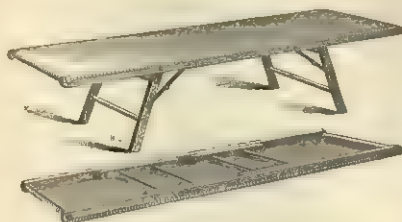
TENNIS NETS.



LAWN TENNIS NETS.

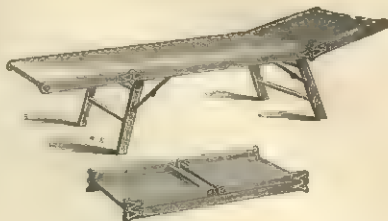
No. 901—36 feet, 15 Thread, ... Each, \$2 50
 No. 902—42 feet, 15 Thread, ... " 3 00

FOLDING COTS.



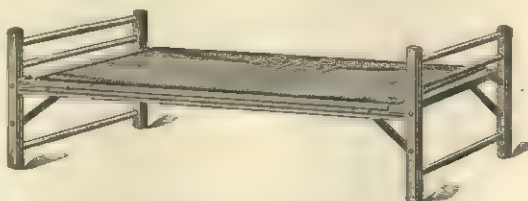
No. 65—ARMY COT.

No. 65 Plain Army Cot, Hardwood Frame, 6 feet 3 inches long, 27 inches wide; weight, 12 pounds, . . . Each, \$2 00



No. 75—FOLDING COT.

No. 75 Folding Cot with Inclined Head, Hardwood Frame, Waterproof Duck, 6 feet 3 inches long, 29 inches wide; weight, 15 lbs., . . . Each, \$3 25

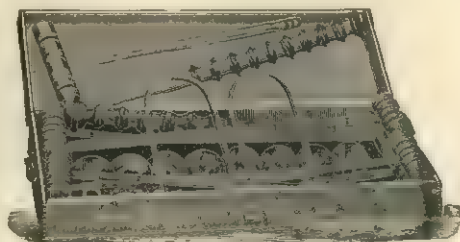


No. 90—FOLDING WIRE COT.

No. 85—Folding Wire Mattress Cot, Wood Natural Color, 2 feet 6 inches wide; weight, 28 pounds, . . . Each, \$2 30
 No. 86—Folding Wire Mattress Cot, Wood Natural Color, 3 feet wide; weight, 30 pounds, . . . " 3 00
 No. 87—Folding Wire Mattress Cot, Wood Natural Color, 3 feet 6 inches wide; weight 35 pounds, . . . " 4 00
 No. 90—Folding Wire Mattress Cot, Wood Natural Color, 30 inches wide, 2 Rows of Springs in Center; wgt. 30 lbs. . . " 2 00

CROQUET.

EACH SET CONTAINS A BOOK OF INSTRUCTIONS,
 IN DOVETAILED BOX.



No. 10—Four Ball Set, Mallets Oiled, Balls and Stakes Varnished, 10 Arches, . . . Per Set, \$0 90
 No. 20—Six Ball Set, Mallets Oiled, Balls and Stakes Varnished, 10 Arches, . . . " 1 20
 No. 30—Eight Ball Set, Mallets Oiled, Balls and Stakes Varnished, 10 Arches . . . " 1 50
 No. 40—Eight Ball Set, Mallets Painted, All Parts Varnished, 10 Arches, two 8-Color Stakes, . . . " 1 90
 No. 50 Eight Ball Set, Handles and Mallets Painted and Striped, two Large Stakes, Ex. Heavy Arches, . . . " 2 30
 No. 60—Eight Ball Set, Fancy Mallets, All Parts Painted and Striped, Fancy Stakes, Ex. Heavy Arches, . . . " 3 10
 No. 70 Eight Ball Set, Fancy Mallets, Shellac Finish, Beaded Stakes, Ex. Heavy Arches with Sockets, . . . " 4 00
 No. 80—Four Ball Professional Set, 8-inch Mallets, Beaded Stakes, Ex. Heavy Arches with Sockets, . . . " 2 30
 No. 90—Eight Ball Set, Genuine Shellac Finish, Fancy Striped, Ebonized and Bronzed Mallets, 6 inches long, Handles and Balls Beautifully Painted and Striped, two Elegant Beaded Stakes, Heavy Arches Painted with Sockets, . . . " 5 00

CAN OPENERS.

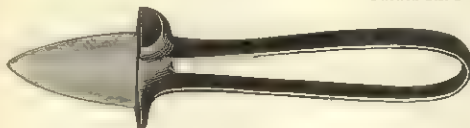


No. 2, SPRAGUE.

No. 1 Sprague, Iron Handle, Japanned.
No. 2—Sprague, Wood Handle,

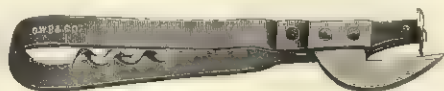
Per Dozen, \$1 50
Per Dozen, 1 50

Packed One Dozen in a box.



No. 20.

No. 20—Iron Handle, ... Per Dozen, \$1 25
Packed One Dozen in a box.



No. 7.

No. 7—Nickel Plated, Tempered Tool Steel Blade,
Per Dozen, \$1 50
Packed in display boxes of One Dozen Each.



STAR.

Star—Adjustable, Steel Blade, Wood Handle.
Per Dozen, \$4 00
Packed One Dozen in a box.



No. 5.

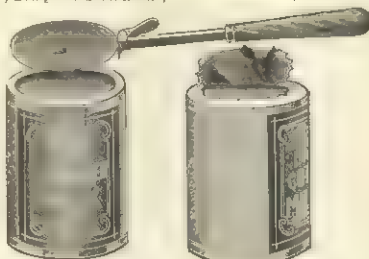
No. 5—White Nickeled, Tempered Tool Steel Blade,
Per Dozen, \$1 50
Packed in display boxes of One Dozen Each.



PEERLESS

Peerless—Nickel Finish, Japanned Handle, Tempered Steel Blade,

Per Dozen, \$2 00



THE NEW WAY.

THE OLD WAY.

Derby—Can Opener, Made of Tempered Tool Steel,

Packed One Dozen in a hinged box.

Per Dozen, \$1 50



W & S JACKS



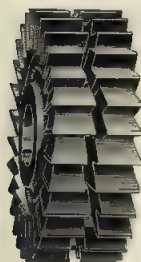
We make more Jacks and more kinds of Jacks than anyone else on earth. We know Jacks, know what they're intended for and how best to meet the requirements. We make close on to 300 different kinds, they cover just about every conceivable Jack purpose. If you can't find the Jack to suit you in this assortment, we'll make you one to meet your special needs. Making them as we do in quantities, we can afford to sell at a reasonable price. Book of Jacks sent on request.



Chicago Office - 453 R. W. Kelly
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Watson-Stillman Co.,

202 East 43d Street, New York.



Milling Cutters

The cut shows an interlocking side milling cutter. They are handy and convenient to use, being easily adjusted for the maintenance of a standard width of slot. We make but one thing—Milling Cutters—that's why ours excel. Why not buy of specialists?

Our little book is yours for the asking.

Gay & Ward, Athol, Mass., U.S.A.

London Agents - Chas. Neat & Co., 113 Queen Victoria Street.



Shelby

THERE ARE THOUSANDS OF USES

STEEL TUBING

For very many purposes in a mechanical and engineering way our seamless steel tubing affords a better means in the meeting of many propositions than any other method, inas-

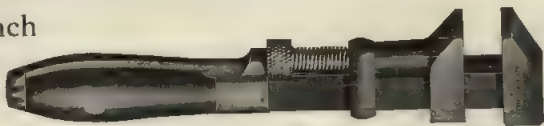
much as its application is made in a minimum of time and its shaping to the needs at hand is easily accomplished. Full details on request.

Among the many applications for this tubing we mention a few. These will perhaps suggest a use in your own shop: hollow axles, roller bearings, bushings, hollow spindles, armature journals, laundry machine rollers, for automobile construction.

SHELBY STEEL TUBE CO.

General Sales Office **Pittsburgh, Penna., U.S.A.**

This Wrench
is a *Coes*
Wrench.



This is a
TRADE-MARK.
"KNIFE-HANDLE" *Coes* trade mark.

REG. U. S. PAT. OFF. APR. 9, 1900

Both are Copied.

Our new one is better than this, and will be
ready soon. In the mean time buy this one.
The best one anywhere. . They all sell it.

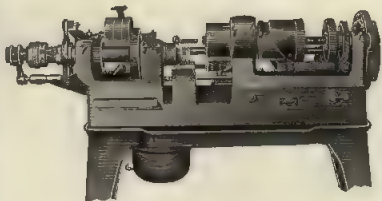
Circulars of *Coes Wrench Co., Worcester, Mass.*

John H. Graham & Co.,
123 Chambers St., New York. 118 Holborn, London, E. C.
28 Vestergade, Copenhagen K.

AGENTS:

J. C. McCarty & Co.,
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For the next few weeks and you will
gain a pretty good idea of how our
machines are built, what they will do
and of their profit producing qualities.

Cleveland Automatic Machines are
designed for automatically forming
and threading duplicate multiple parts
from rods of steel, brass, copper,
aluminum, cast bars of iron and brass
or odd shaped castings.

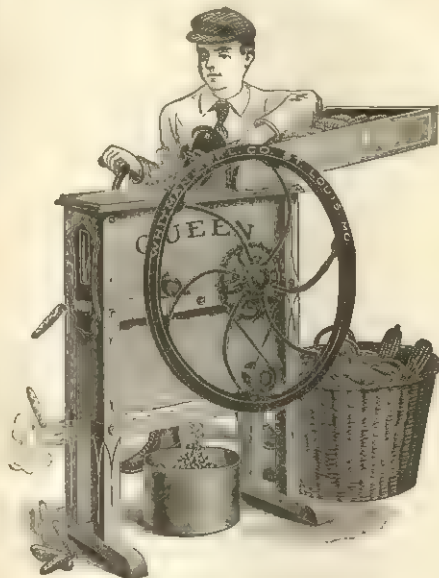
They are durable, economical and
simple. Send us a sample of your
output and we will give you an esti-
mate of its production on Cleveland
Automatics.

See next week's ad. for information
about Feed Adjustment.

The Cleveland Machine Screw Co.,
CLEVELAND, OHIO, U. S. A.

FOREIGN BRANCHES: Messrs. Chas. Churchill & Co. London. Manchester. Birmingham. Newcastle-on-Tyne and Glasgow.
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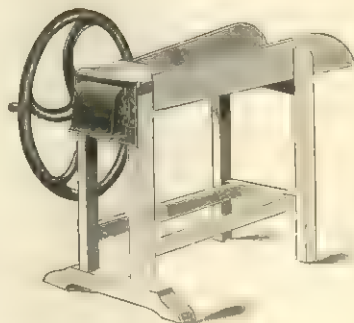
CORN SHELLERS.



QUEEN CORN SHELLER.

Queen—Corn Sheller, Balance Wheel 27 inches in Diameter, Hard Wood Frame, Steel Shafts running in Metal Boxes; Complete with Fan and Fails. Each, \$8 50
Weight 125 Pounds.

FEED CUTTERS.

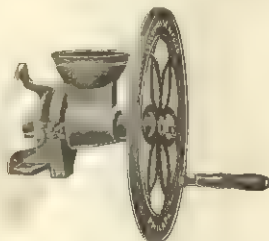


SANFORD HAY OR STRAW CUTTER.

No. 2—Sanford Hay or Straw Cutter, 6 inch Cutters, Knives Tempered and Ground of Best English Steel. Each, \$10 00
Weight 90 Pounds.

Extra Knives, ... Per Dozen, \$ 2 00
Extra Wood Rollers, ... Per Dozen, 10 00

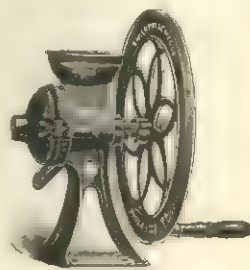
BONE MILLS.



No. 650.

CAPACITY $1\frac{1}{4}$ BUSHELS CORN PER HOUR.

No. 650—Enterprise, Height 11 inches, Length 12 inches, Width 9 inches, Diameter of Throat $3\frac{1}{4}$ inches, Wheel 19 inches. Each, \$7 50
Weight 47 $\frac{1}{2}$ Pounds.



No. 750

No. 750—Enterprise, Height 17 $\frac{1}{2}$ inches, Length 12 inches, Width $8\frac{1}{2}$ inches, Diameter of Throat $3\frac{1}{4}$ inches, Wheel 19 inches, Each, \$7 50
Weight 60 Pounds.

CORN POPPERS.



SQUARE

No. 1—Square, One Quart, Wire Braced, Wire Lid, ... Per Dozen, \$3 00
 No. 2—Square, Two Quarts, Wire Braced, Wire Lid, ... Per Dozen, 3 00



ROUND.

No. 3—Round, One Quart, Wire Braced, Tin Lid, ... Per Dozen, \$2 25

WIRE DISH COVERS.



WIRE DISH COVERS.

Round Blue Wire,	{ Sizes, inches,	6	7	8	9	10	Set of Five.
	{ Per Dozen,	\$1.50	1.45	1.75	2.10	2.50	Per Set, \$0.75
Oval Blue Wire,	{ Sizes, inches,	8	10	12	14	16	Set of Six.
	{ Per Dozen,	\$2 00	3 00	4 00	5 00	7 00	Per Set, \$2 25

WIRE FLY TRAPS.



PARAGON.

Paragon, ... Per Dozen, \$3 00
 Packed One Dozen in a case.



ACME BALLOON.

Acme Balloon, ... Per Dozen, \$2 50
 Packed One Dozen in a case.

MOUSE TRAPS.



"OUT O' SIGHT."

Genuine "Out O' Sight"—Mouse Traps, Per Dozen, \$1 25



SURE CATCH (OR SURE DEATH).

Sure Catch (Or Sure Death)—Mouse Traps, Per Dozen, \$0 75

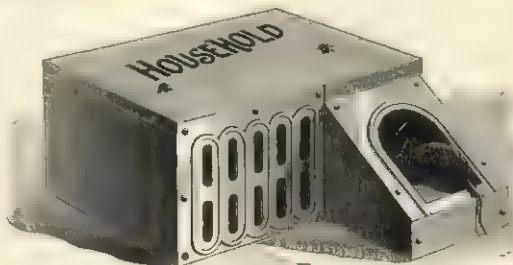
Packed One Dozen in a box.



TIN CHOKER.

Tin Choker—Mouse Traps, Stamped Out of One Piece of Tin, ... Per Dozen, \$1 00

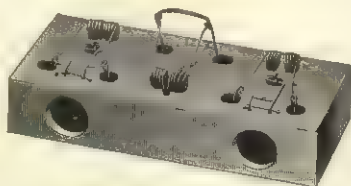
Packed One Dozen in a package.



HOUSEHOLD.

Household—Mouse Traps, Require No Setting.

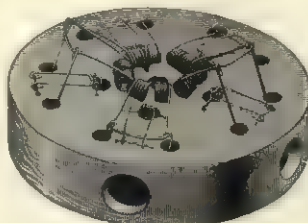
Per Dozen, \$2 50



SQUARE WOOD CHOKER.

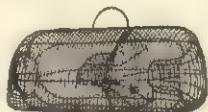
Square Wood Chokers,	Nos. . .	1/8	2/8	3/8
	Holes. . .	1	2	3
	Per Dozen,	\$0.20	.40	.60

Packed One Dozen in a package.



ROUND WOOD CHOKER.

Round Wood Chokers,	Nos. . .	4/R	5/R	6 R
	Holes. . .	4	5	6
	Per Dozen,	\$0.80	1.00	1.20



ST. LOUIS MOUSE TRAP.

No. 10—St. Louis, Mouse Traps, 7 1/4 x 4 x 4 inches, ...

Per Dozen, \$3 00

Packed One-half Dozen in a bundle.



1420



SIXTH DIVISION, DEPARTMENT OF CUTLERY.

WITTE HARDWARE CO.'S CUTLERY CASES.



Cut Shows No. 21 case

Nos. 2 AND 1, WITTE HARDWARE CO.

No. 2—Witte Hardware Co., Combination Case, Solid Oak, Double Strength Glass, Size 54 inches Long, 28 inches Wide, 17 inches High. Has a Raised Platform inside of case 4 inches High, Top of Same Covered with Fine Red Silk Plush, and Divided into Spaces for 54 Patterns of Pocket Knives, 12 Patterns of Shears and Scissors, and 4 Patterns of Razors, Two Sliding Doors in Back fitted with Mirrors, and below Doors there are 2 Drawers Sliding Under Platform. Drawers are Divided into Compartments to keep Stock of Cutlery Corresponding with Samples kept Above, ... Each, \$50 00

No. 1—Witte Hardware Co., Pocket Knife Case, Contains 86 Compartments, for Pocket Knives only, Other wise Same as No. 2 Above, ... Each, 50 00

Packed One in a box, Weight 100 Pounds.

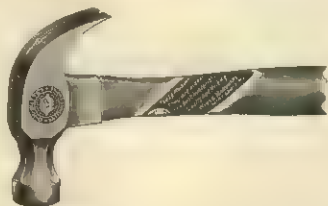


SOLID CAST STEEL HAMMERS.



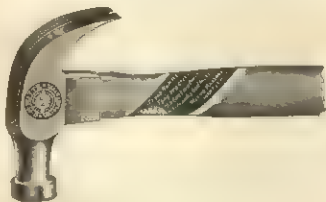
Cut shows manner of packing O. H. Witte Hammers.

O. H. WITTE'S NICKEL PLATED HAMMERS ARE MADE FROM THE BEST CRUCIBLE STEEL, CAREFULLY TEMPERED. HEAVILY NICKEL PLATED AND FANCY ETCHED. SELECTED SECOND-GROWTH WHITE HICKORY HANDLES, AND ARE PACKED IN WOOD BOXES.



OCTAGON PATTERN, ADZE EYE, BELL FACE NAIL.

- No. 411 O. H. W. Artisan Choice**, Size 1½, Weight 1 lb. 1 oz., **Nickel Plated Extra Tool Steel**, Adze Eye, Bell Face, Octagon Pattern, **Applewood Handle**, Per Dozen, \$15 00
No. 421 O. H. W. Artisan Choice, Size 1½, Weight 1 lb. 1 oz. **Nickel Plated Extra Tool Steel**, Adze Eye, Bell Face, Octagon Pattern, **Hickory Handle**, Per Dozen, 18 50



ADZE EYE, BELL FACE NAIL

- No. 440 O. H. W.**, Size 1, Weight 1 lb. 4 oz., Per Dozen, \$18 00
No. 441—O. H. W., Size 1½, Weight 1 lb., Per Dozen, 13 50
No. 442 —O. H. W., Size 2, Weight 13 oz., Per Dozen, 12 00
No. 443 O. H. W., Size 3, Weight 7 oz., Per Dozen, 11 50



ADZE EYE, PLAIN FACE NAIL.

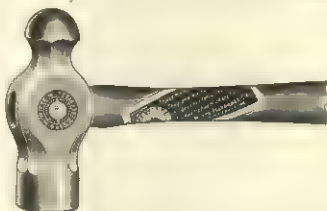
- No. 460—O. H. W.**, Size 1, Weight 1 lb. 4 oz., Per Dozen, \$18 00
No. 461 —O. H. W., Size 1½, Weight 1 lb., Per Dozen, 12 50
No. 462 O. H. W., Size 2, Weight 13 oz., Per Dozen, 12 00
No. 463 O. H. W., Size 3, Weight 7 oz., Per Dozen, 11 50

Weights on Hammers do not include Handles.

Packed half-dozen in a wood box.

SOLID CAST STEEL HAMMERS.

O. H. WITTE, NICKEL PLATED HAMMERS.

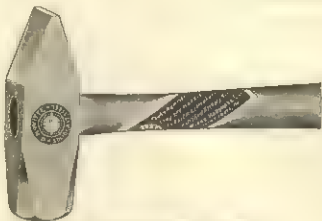


MACHINISTS BALL PEIN, OCTAGON PATTERN.

O. H. Witte's, N. P.,

Size.	0	1	2	3	4
Weight.	1 lb.	1 lb. 4 oz.	1 lb. 8 oz.	1 lb. 12 oz.	2 lbs.
Per Dozen.	\$12.50	13.50	14.50	15.50	16.50

Packed One-third Dozen in a wood box.



BLACKSMITH'S HAND

O. H. W., N. P.,

Size.	1	2	3
Weight.	2 lbs.	2 lb. 10 oz.	3 lbs.
Per Dozen.	\$14.00	15.00	16.00

Packed One-third Dozen in a wood box.



RIVETING, PLAIN EYE.

O. H. W.,
N. P.,

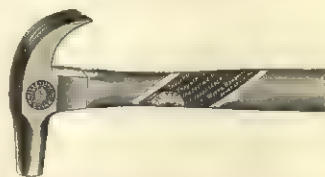
Size.	1	2	3	4	5
Weight.	7 oz.	9 oz.	12 oz.	15 oz.	17 1/2 oz.
Per Dozen.	\$5.75	6.00	6.25	6.50	7.00

Packed One-half Dozen in a wood box.



FARRIERS' PLAIN-EYE, ROUND POLE.

No. 483—O. H. W., N. P., Weight, 7 oz.,
Per Dozen \$8.25



FARRIERS' ADZE-EYE, ROUND POLE.

No. 482—O. H. W., N. P., Size, 3, Weight, 7 oz.,
Per Dozen, \$7.50



FARRIERS' ADZE-EYE, BOSTON PATTERN.

O. H. Witte's, N. P., Size, 6, Weight, 12 oz., ... Per Dozen, \$9.00

Packed One-half Dozen in a wood box.

Weights on Hammers do not include Handles.

Here is Another GENUINE PERSONS

The Finest, Strongest, Lightest and Fastest Saddle ever sent forth from the PERSONS MFG. Co. It is the



PERSONS SPECIAL

However, there is a Tail to Every Comet, and Imitator- Still Follow Fast on the trail of the Persons. AVOID Fakes and Freaks! WHEN YOU CAN GET A GENUINE Persons for — cents, why consider an Imitation?

THE : PERSONS : MANUFACTURING : COMPANY

CHAS. PERSONS, Pres. WORCESTER, MASS.

THE NEFF ADJUSTABLE SPRING HANDLE BAR

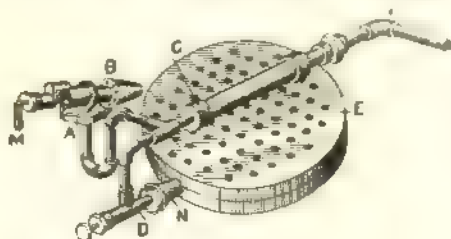
By adding to the comfort of cycling, manufacturers and dealers increase both sales and profits. You all know that the most important part of a good trade is comfort. Here is another good one. Write for it.

NEFF HANDLE BAR CO., Webster City, Iowa.

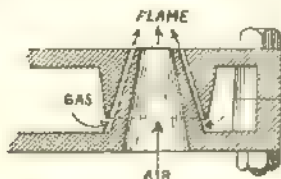
THE JENKINS AUTOMOBILE BURNER.

The Jenkins Automobile Burner is made by the Jenkins Kerosene-Gas Burner Co., 1103 H street, N. W., Washington, D. C. These burners were given a test of over a year's use on the vehicles made by the Jenkins Automobile Co. before being offered to the trade generally. Either gasoline or kerosene can be used as fuel, or, in fact, any hydro-carbon fluid.

The Jenkins Burner is made of two spe-



PAT. 5 PERMITS



Perspective and Sectional Views of the Jenkins Burner.

able pieces of refractory stove iron, and is guaranteed by the manufacturers not to warp or burn out. It is fitted with steel air tubes that will not choke up.

To replace a steel plate burner with a Jenkins is a simple matter. The weight of the latter is, approximately, twice that of the steel plate burner. For using kerosene a special outfit is provided, but it should be noted that after the special vaporizer for burning kerosene is put on gasoline can still

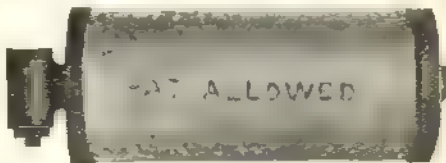
turned to useful account. The gas thus generated burns quietly, without smoke or odor and without fouling the boiler tubes. Pilot light is provided with either equipment and is not an extra.

The manufacturers strongly recommend the use of kerosene, citing as advantages economy in the long run, cleanliness and lower insurance rates. Many insurance companies charge high rates, and others refuse to place insurance on buildings where gasoline is kept or used.

Prices of the Jenkins Burners are as follows: For burning gasoline, 14-inch, \$12; 15-inch, \$13; 16-inch, \$14; 18-inch, \$16; 20-inch, \$18. For burning kerosene, 14-inch, \$24; 15-inch, \$26; 16-inch, \$28; 18-inch, \$32; 20-inch, \$36; 22-inch, \$40; 25-inch, \$44.

THE WEBER MUFFLER FOR GASOLINE VEHICLES.

A new muffler for gasoline carriages is being offered by C. F. Weber, Jr., 255 Sherman street, Albany, N. Y. This is a very useful invention and as set forth in his advertisement on another page there are many good reasons why it should be used by owners of gasoline automobiles. It entirely eliminates the noise from the exhaust



and there is no loss of power occasioned by its use. It is not large or unsightly, and can be placed where convenient. It works on the contraction and expansion system.

It is strong and substantial and is made in sizes to fit any motor. The one inch muffler measures 11x5 inches and larger sizes in proportion.

The manufacturer desires to arrange with



Several Shapes and Sizes of Jenkins Burner

be used as fuel. Thus the automobilist has two chances of finding fuel.

The vaporizer referred to is a short pipe or drum-like device of special construction, extending across the combustion chamber, one end of which is attached to the pipe leading from the fuel tank, the other end being attached to the automatic or nozzle valve.

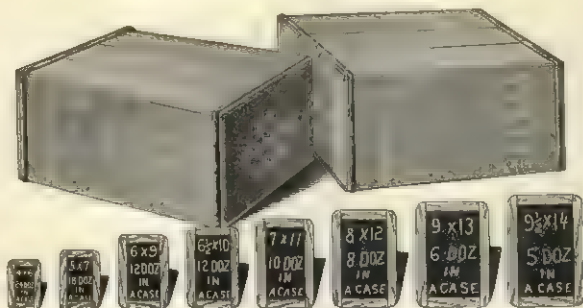
They are made in various shapes and sizes to suit many requirements.

The special vaporizer converts the kerosene into gas, and all the heat properties are

dealers everywhere in order to get the muffler introduced where not now represented

The Yarmouth Cycle Co., Yarmouth, Nova Scotia, are importers and jobbers of bicycles and supplies. They have a large trade in the maritime provinces. They are always open for propositions on large lots of anything in their line. They have just issued a very attractive 1902 calendar which will no doubt help to keep them in the minds of those in the trade who have received copies of it.

SLATES.



Cut Shows Method of Packing Assortments Nos. 1 and 2.

SINGLE SLATES.

WOOD FRAME, TRIPLE TENON.

Single Slates,	Sizes, inches, . . .	5x7	6x9	6½x10	7x11	8x12	9x13	9½x14
	Weight Per Dozen, pounds, . . .	6	9	11	12½	15½	18	18½
	Per Dozen, .. .	\$0.50	.73	.75	.80	1.00	1.30	1.60

SLATES IN ASSORTMENTS.

- No. 2 Assortment,** Contains **10 Dozen** Single Wood Frame Slates, Assorted as follows: 3 Dozen 5x7, 2 Dozen 6x9, 2 Dozen 6½x10, 2 Dozen 7x11, ½ Dozen 8x12, ½ Dozen 9½x14 inches, ... Per Case, \$7 50
Weight 90 Pounds.
- No. 1 Assortment,** Contains **11½ Dozen** Single Wood Frame Slates, Assorted as follows: 1½ Dozen 5x7, 2 Dozen, 6x9, 2 Dozen 6½x10, 3 Dozen 7x11, 3 Dozen 8x12 inches, ... Per Case, 9 50
Weight 100 Pounds.



Cut Shows Double

NOISELESS SLATES.

Single Noiseless,	Sizes, inches, ...	5x7	6x9	7x11	8x12	9x13
	Weight Per Dozen, pounds, ...	8	12	16	19½	25
	Per Dozen, ...	\$2.40	3.00	3.60	4.20	4.80

- No. 3 Assortment,** Contains **9 Dozen** Single Noiseless Slates, Assorted as follows: 2 Dozen 5x7, 3 Dozen 6x9, 3 Dozen 7x11, 1 Dozen 8x12 inches, ... Per Case, \$28 80
Weight 116 Pounds.

Double Noiseless,	Sizes, inches, ...	5x7	6x9	7x11	8x12	9x13
	Weight Per Dozen, pounds, ...	16	24	32	38	53
	Per Dozen, ...	\$4.80	6.00	7.20	8.40	9.60

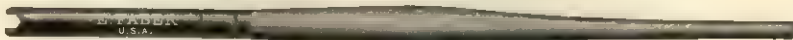
- No. 4 Assortment,** Contains **4½ Dozen** Double Noiseless Slates, Assorted as follows: 1 Dozen 5x7, 1½ Dozen 6x9, 1½ Dozen 7x11, ½ Dozen 8x12 inches, ... Per Case, \$23 80
Weight 131 Pounds.

PEN HOLDERS.



No. 471.

No. 471—Pen Holders, Bronzed Steel Accommodation Tips, Straight Fluted Maple Handles, Colored, . Per Gross, \$0 60
Packed One Gross in a box.



No. 2491.

No. 2491—Pen Holders, Medium Size, Bined Steel Tips, Swell Cedar Enameled Handles, . Per Gross, \$2 50
Packed One-half Gross in a box

PEN POINTS.

MILLER BROS'.



No. 1.

No. 1—Bank Pens, Bronze Finish, . Per Gross, \$0 90



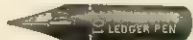
No. 4.

No. 4—Carbon Pens, Stub, White Finish, Per Gross, \$1 15



No. 28.

No. 28—Fine Elastic Pens, White Finish, Per Gross, \$1 00



No. 101.

No. 101—Ledger Pens, White Finish, . Per Gross, \$1 00



No. 77.

No. 77—Falcon Pens, Aluminum Finish, . Per Gross, \$0 90



No. 74.

No. 74—Carbon Pens, Falcon Stub, White Finish, Per Gross \$1 10

INK.



CARTER'S.

Carter's Inks,—2-oz. Cone, Milled Top, . Per Dozen, \$0 75



LEVISON'S.

Levison's Inks—2-oz. Cone, Milled Top, . Per Dozen, \$0 60

Packed One-quarter Gross in a box.



LEVISON'S PINTS AND QUARTS.
BLUE BLACK WRITING INK.

Levison's, { Sizes, Pints Quarts
Per Bottle, \$0.80 1.30

Packed Twelve Bottles in a box.

Packer's Tar Soap



On Your Easter Vacation

TAKE WITH YOU

Packer's Tar Soap

CLEANSING
REFRESHING

HYGIENIC
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INVALUABLE WHEN TRAVELING

IS SOLD EVERYWHERE—PRICE 25 CENTS

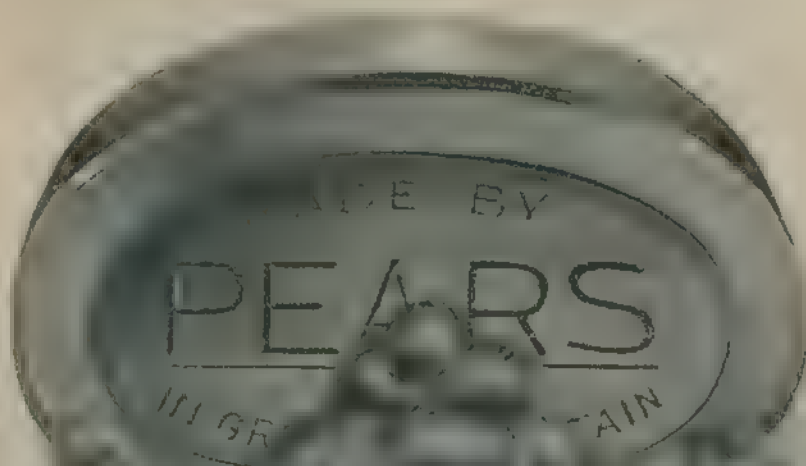
A Sample (½ Cake) may be obtained by sending 10 cents (stamps) to address below.
Our Leaflet, "The Value of Systematic Shampooing," mailed free on application to
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THE STANDARD
FOR MORE THAN A QUARTER CENTURY
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Pears'
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THERE are many white soaps, each represented to be just as good as the Ivory; they are not, but like all counterfeits, they lack the peculiar and remarkable qualities of the genuine. Ask for Ivory Soap and insist upon getting it.

The drawing by Fanny Y. Cory, reproduced above, was awarded third prize of Three Hundred Dollars in a recent artists' competition conducted by The Procter & Gamble Co.

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1 2-lb. Pkg. Ralston Barley Food,
1 2-lb. Pkg. Ralston Health Oats,

12-lb. Pkg. Ralston Hominy Grits,
1 2-lb. Pkg. Purina Pankake Flour,
2 12-lb. Sacks Purina Health Flour.

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N. B. You may not have children but if you like good foods your neighbors' children will like them.

PURINA MILLS PRESS



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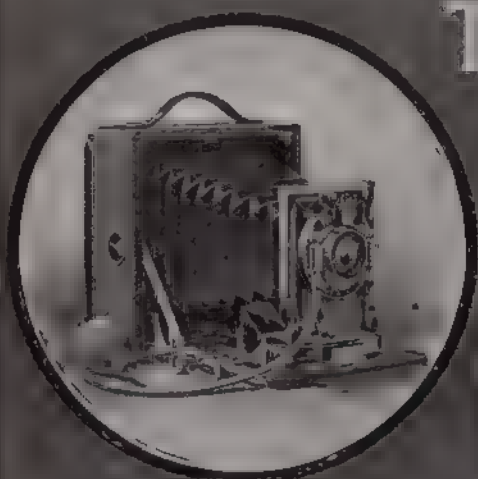
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FREE The Premo Book containing all you need to know about a camera. A wealth of photographic information for the asking. Ask your dealer or send us your address. Dept. A, Rochester Optical Co., Rochester, N. Y.



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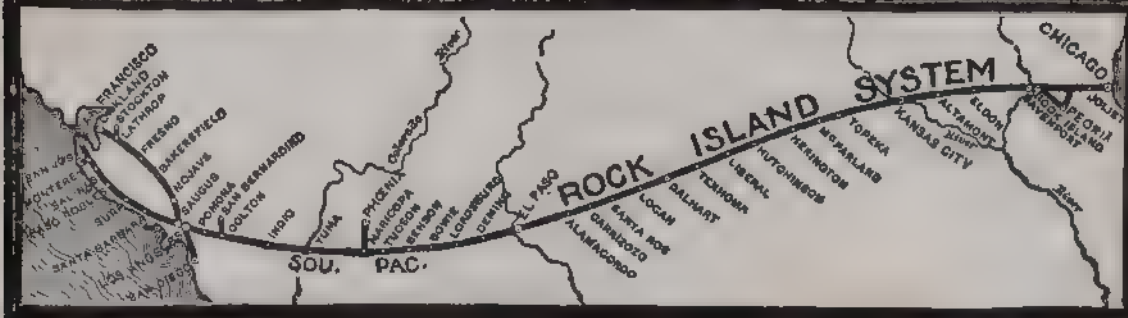
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HOUSE FURNISHINGS 36

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the most useful thing is the desk. Convenience, durability, and beauty—in the order named—are the chief requirements

This desk would be an inspiration to work. It is made in the workshops of the

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by men who believe in a closer union of beauty and utility.

The flat top is covered with tough roan skin, forming an ideal writing surface. It has two deep drawers and underneath is a magazine rack. Made of weathered oak, with honest joints and clean lines, it will stand years of rough college usage, and then find a welcome in your home for a generation or two.

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Putman Boots are in use in nearly every civilized country in the World. They are Genuine Hand Sewed, Water Proof, Made to measure, Delivery charges prepaid, and cost no more than others. Send for catalogue of over **30 Different Styles** of boots, Also **Indian Tanned Mooshide Moccasins**.

Illustration shows No. 000, 14 inches high, Bellows Tongue, made on any style toe desired, Uppers are Special Chrome Tanned Calf Skin, tanned with the grain of the hide left on, (Our Special Tannage) making the leather **water proof**, black or brown color, large eyelets and wide leather laces, laced at side to fit boot tight around top, sole, light, medium or heavy. The soles are Genuine Hand Sewed (making them soft and easy) and made of the best Water Proof Oak Sole Leather.

Made to measure and delivered in the U.S. Canada or Mexico for **\$7.50.**

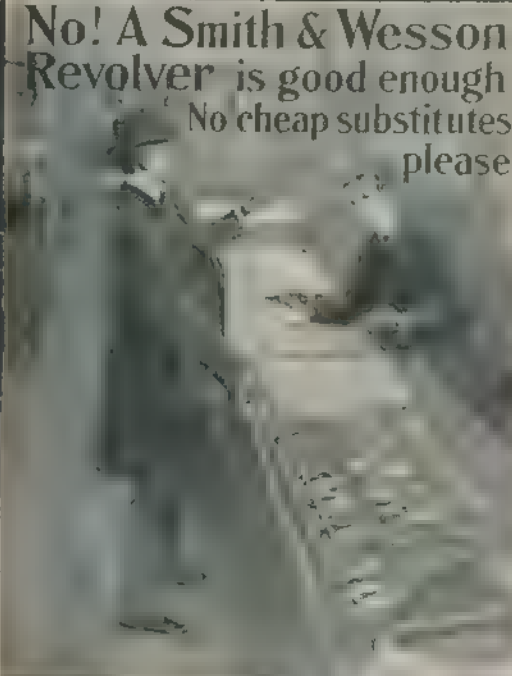
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Send for Order Blank showing how to measure your Foot.

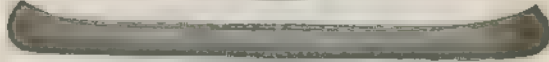
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No cheap substitutes please



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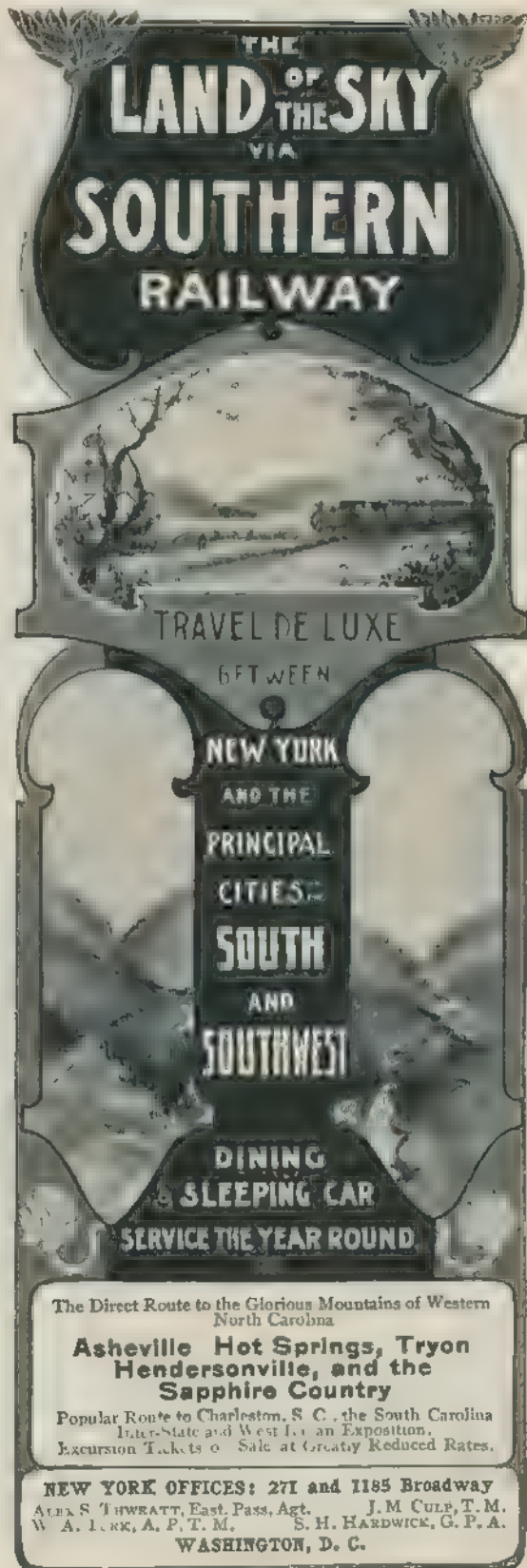
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SPORTING GOODS 51



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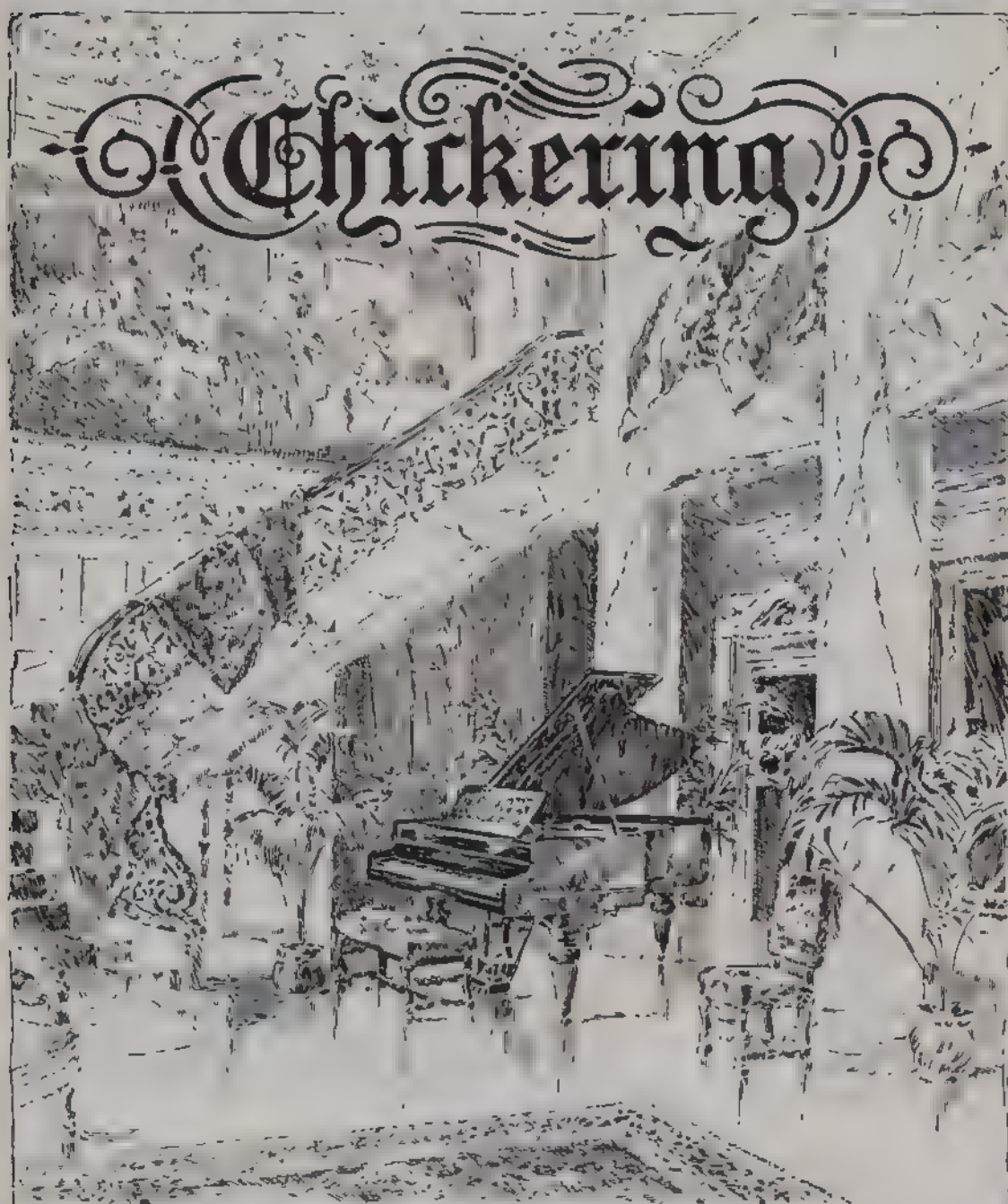
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Sept. 1902.



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Great Artist
Says of
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The Brunswick, Boston, March 12, 1902.

Theodore P. Brown, Esq.

Dear Sir:— One point appeals to me most strongly in the capacity of your Simplex Piano Player over all others. I mean the strong accents as coupled with immediate pianissimos, producing a dramatic effect for the study of roles which I have found in no other player.

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PLAYER**

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Requires the smallest amount of work— Unequaled expression obtained— Perfect harmony between operator and instrument— The simplest and most finished in mechanical construction.
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is made by a Company that has never tried to see how far it could go in cheapness without getting over the line which separates a thoroughly reliable piano from a "Make believe." We have never believed in the "thirty-five inches to the yard or fifteen and a half ounces for the pound" kind of piano building. Our whole aim is a dependable piano at a fair price, and over 75,000 satisfied purchasers say, "buy an Emerson." Our illustrated catalogue and easy terms system free upon application. Address Dept. R

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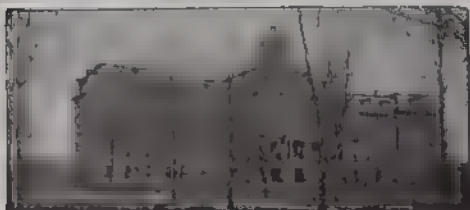
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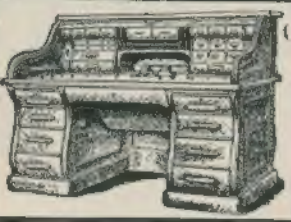
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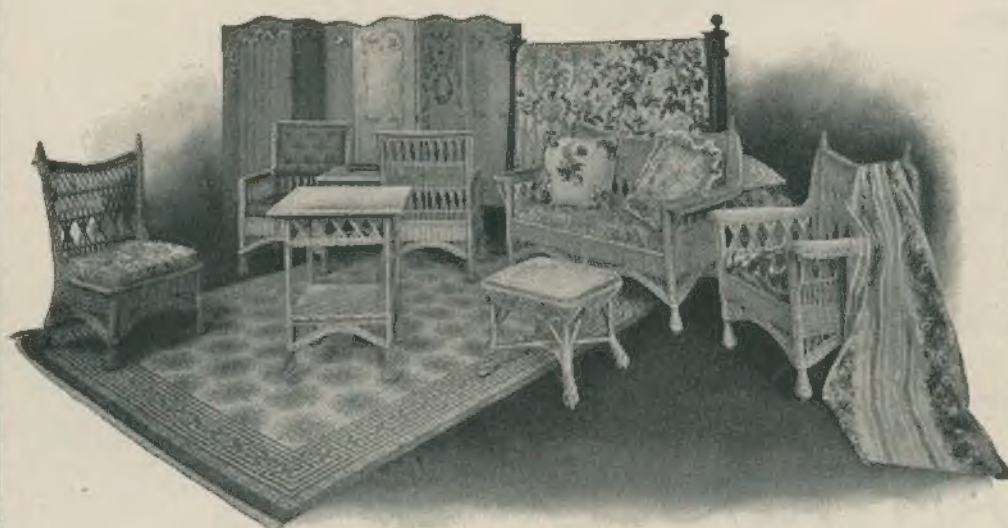


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